

REVOX

B126/B226-S

Serviceanleitung
Service Instructions
Instructions de service



**SERVICEANLEITUNG
REVOX B126/B226-S - COMPACT DISC PLAYER**

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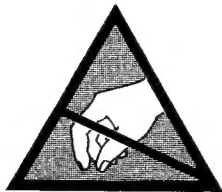
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Behandlung von MOS-Bauteilen

MOS-Bausteine sind besonders empfindlich auf elektrostatische Ladungen. Folgendes ist daher zu beachten:

- Elektrostatisch empfindliche Bauteile werden in Schutzverpackungen gelagert und transportiert. Auf der Packung wird obiges Etikett angebracht.
- Jeder Kontakt der Elementanschlüsse mit elektrostatisch aufladbaren Materialien ist unbedingt zu vermeiden.
- Anschlüsse dürfen nur berührt werden wenn das Handgelenk geerdet ist.
- Als Arbeitsunterlage ist eine geerdete, leitende Matte zu verwenden.
- Printkarten nicht unter Spannung herausziehen oder einstecken.

Handling MOS components

MOS components are extremely sensitive to static charges. Please observe therefore the following regulations:

- Components sensitive to static charges are stored and shipped in protective packagings. On the package you find the above-mentioned symbol.
- Avoid any contact of connector pins with foam packages and -foil made of similar chargeable package material.
- Don't touch the connector pins, when your wrist is not grounded with a conducting wristlet.
- Use a grounded conducting mat when working with sensitive components.
- Never plug or unplug PCBs containing sensitive components when the set is switched on.

Manipulation des composantes MOS

Les composantes MOS sont extrêmement sensibles à l'électricité statique. Veuillez donc suivre les conseils:

- Les composants MOS sont stockés et transportés dans des emballages protecteurs avec le symbole susmentionné.
- Evitez tout contact entre les broches des circuits et matériau susceptible de porter une charge électrostatique.
- Ne touchez pas les broches des circuits si votre poignet n'est pas relié à la terre par un bracet conducteur.
- Utilisez un tapis conducteur relié à la terre quand vous travaillez avec des composants sensibles.
- Ne jamais enficher ou retirer des circuits imprimés si l'appareil est sous tension.

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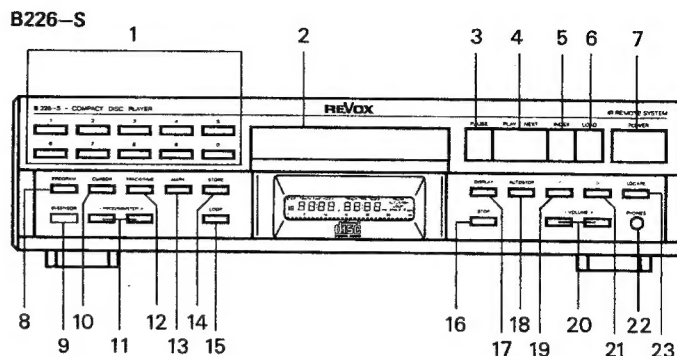
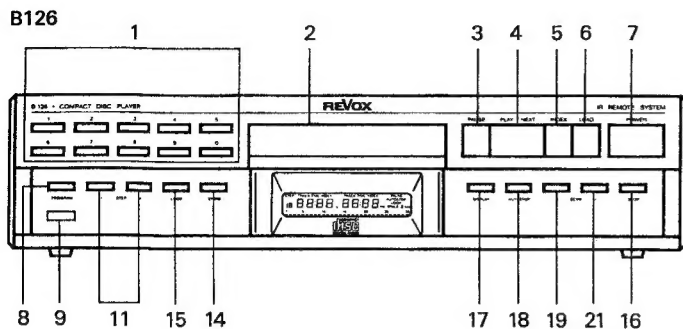
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1. ALLGEMEINES



1.1 BEDIENUNGSELEMENTE

= Mit diesen Tasten kann das Gerät direkt eingeschaltet werden.

Die Taste PLAY/NEXT [4] schaltet das Gerät in den Abspielmodus; eine eingelegte Disc wird ab dem ersten TRACK abgespielt.

Die Taste STOP [16] schaltet das Gerät nur ein; die Tasten PAUSE und LOCATE schalten das Gerät am Beginn des ersten TRACK auf Pause.

Drücken der Taste PLAY/NEXT [4] startet den Abspielvorgang; wenn mit einer Zahlentaste [1] und PLAY/NEXT [4] eingeschaltet wurde, so wird ab dem vorgewählten TRACK abgespielt.

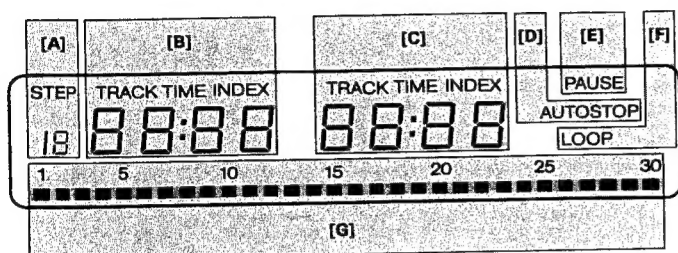
Bedienungselement Funktion

- | | | | |
|--------------------|--|----------------------|---|
| [1]# Tasten 0 - 9 | Ziffern-Eingabetasten für die direkte Anwahl eines Stückes (TRACK oder INDEX) in Verbindung mit der Taste PLAY/NEXT [4] resp. INDEX [5]. | [8] PROGRAM | Mit dieser Taste kann der Eingabemodus ein- und ausgeschaltet werden. |
| [2] Disc-Schublade | Diese Schublade führt die Compact Disc dem Laser-Laufwerk zu. Sie wird durch Drücken der Taste LOAD [6] aus- und eingefahren. | [9] IR-SENSOR | Infrarot-Empfängerfenster |
| [3]# PAUSE | Mit dieser Taste kann der Abspielvorgang jederzeit unterbrochen werden. Drücken der Taste PLAY/NEXT [4] setzt den Abspielvorgang an der unterbrochenen Stelle wieder fort. | [10] CURSOR | Mit dem CURSOR kann jede Stelle in der Anzeige angefahren und danach bei Bedarf editiert werden. Beim B226-S blinken editierbare Teile des Displays. |
| [4]# PLAY/NEXT | Abspieltaste. Erneutes Drücken lässt das nächste Stück abspielen. Drücken nach dem Betätigen der Ziffern-Eingabetasten [1] lässt das ausgewählte Stück abspielen. | [11] PROGRAMSTEP +/- | Diese Tasten erlauben während des Programmierens das Aufwärts- [+] resp. Abwärts- [-] Blättern im Programm. |
| [5] INDEX | Indextaste. Erneutes Drücken lässt das Stück ab dem nächsten Index abspielen. Drücken nach dem Betätigen der Ziffern-Eingabetasten [1] lässt den ausgewählten Index abspielen. Ist die CD nicht mit Index versehen, so wird beim Betätigen dieser Taste immer zum nächsten TRACK gesprungen. | [12] TRACK/TIME | Mit dieser Taste kann während des Programmierens die Anzeige von TRACK- (Stück-) auf TIME- (Zeit) Eingabe umgeschaltet werden. |
| [6]# LOAD | Durch Betätigen dieser Taste fährt die Disc-Schublade [2] aus resp. ein. | [13] MARK | Im Programmiermodus kann mit dieser Taste während des Abhörens eine Start- und/oder Stoppmarke gesetzt werden. (Nur DISC-TIME). |
| [7]# POWER | Mit dieser Taste kann das Gerät ein- und ausgeschaltet werden. Gewisse Teile des Gerätes bleiben allerdings immer eingeschaltet (STAND BY). | [14] STORE | Speicherlade-Taste, muss nach jeder Programmschritt-Eingabe gedrückt werden. |
| | | [15] LOOP | Diese Taste lässt eine CD oder ein Programm immer wieder abspielen. Endlosbetrieb. |
| | | [16]# STOP | Drücken dieser Taste unterbricht den Abspielvorgang und lässt den Laser-Abaster in die Anfangsposition zurückkehren. (Unterbricht auch ein laufendes Programm). |
| | | [17] DISPLAY | Schaltet die Zeitanzeige TIME im Feld [C] um. Vier unterschiedliche Zeitanzeigen sind möglich:
a) DISC-TIME (Zeit seit CD-Anfang).
b) TRACK-TIME (Zeit seit TRACK-(Stück) Anfang).
c) TRACK-REMAINING-TIME (Zeit bis zum Ende des TRACKS (Stückes)).
d) DISC-REMAINING-TIME (Zeit bis zum Ende der CD). |
| | | [18] AUTOSTOP | Diese Taste unterbricht den Abspielvorgang am Ende des gerade laufenden Stückes oder Programm-Schrittes (PAUSE). Drücken der Taste PLAY/NEXT [4] setzt den Abspielvorgang fort. |

- [19] < Mit dieser Taste kann in einem Stück jede Stelle gegen den Anfang hin angefahren werden. (Gedrückt halten = kontinuierlicher Rücklauf).
- [20] VOLUME +/- Mit diesen Tasten werden die Pegel des Kopfhörer-Ausgangs wie auch des Ausgangs VARIABLE OUTPUT verändert. Die Pegelanzeige erscheint bei Betätigung dieser Tasten für kurze Zeit im Segment [G] des Displays (nur beim B226-S).

- [21] > Mit dieser Taste kann in einem Stück jede Stelle gegen das Ende hin angefahren werden. (Gedrückt halten = kontinuierlicher Vorlauf).
- [22] PHONES Klinkenbuchse für Kopfhörer 200 ... 600 Ω (nur B226-S).
- [23] # LOCATE Locator-Funktion. Beim Betätigen dieser Taste wird der Abspielvorgang unterbrochen und das Gerät an der Stelle des letzten PLAY/NEXT-Befehls auf PAUSE geschaltet.

ANZEIGEFELD



- [A] STEP Nummer des aktuellen Programmschrittes; im Programmiermodus blinkt der Schriftzug STEP; im normalen Abspielmodus ist diese Anzeige nicht sichtbar.

- [B] TRACK TIME INDEX In diesem Feld wird in der ersten und zweiten Stelle das spielende Stück (TRACK) und in der dritten und vierten Stelle der zugehörige INDEX (wenn vorhanden) angezeigt. Im Programm-Mode des B226-S kann hier auch eine Anfangs-Zeit (Min. und Sek.) stehen.

[C] TRACK TIME INDEX

In diesem Feld steht die aktuelle Stück- (TRACK-) Zeit (seit Stückbeginn) oder CD-Zeit (seit CD-Anfang). Im Programm-Mode können hier auch eine Endzeit, ein End-Stück oder -Index stehen.

[D] AUTOSTOP

Sichtbar bei aktiviertem AUTOSTOP-Betrieb.

[E] PAUSE

Anzeige der PAUSE-Funktion.

[F] LOOP

Sichtbar bei aktivierter LOOP-Funktion (Endlosbetrieb).

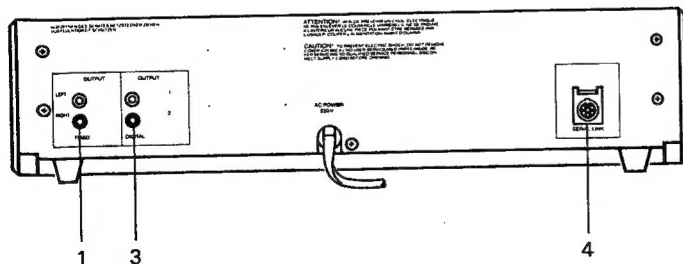
[G]

Inhaltsverzeichnis; fehlende Punkte links = bereits abgespielte Stücke, totale Anzahl Punkte = Anzahl der Stücke auf der eingelegten CD.

Lautstärkenanzeige (nur B226-S); während der Einstellung der Kopfhörerlautstärke bzw. des variablen Ausgangs wird kurzzeitig der Pegel angezeigt (Auflösung ca. 2 dB/Segment).

1.2 ANSCHLUSSFELD

B126

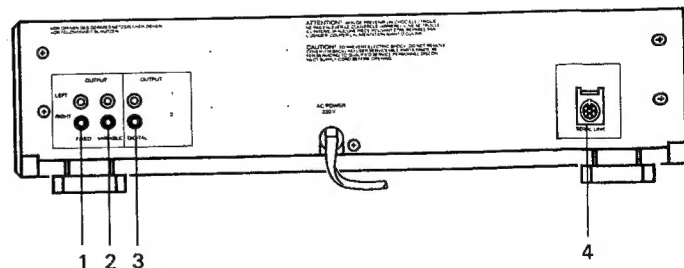


Anschluss

Funktion

- [1] FIXED OUTPUT Normpegel-Ausgang:
U_{max}: 2,5 V_{eff},
R_i: <500 Ω , kurzschlussfest.
- [2] VARIABLE OUTPUT Ausgang mit variablem Pegel:
U: 0,0 ... 2,5 V_{eff},
R_i: <500 Ω , kurzschlussfest.

B226-S



[3] DIGITAL OUTPUT

2 gleichwertige Digital-Ausgänge: Vollständige serielle Information der CD; linker Kanal, rechter Kanal, und Subcodes.
U_{max}: 0,50 V_{pp},
R_i: 75 Ω .

[4] SERIAL LINK

Serieller Steueranschluss für den Anschluss eines externen IR-Empfängers B206 oder des Controllers B200. Über diese Buchse kann auch der interne IR-Empfänger ausgeschaltet werden (Pin1 mit Pin2 und Pin4 mit Pin5 verbinden).

2. DEMONTAGE ANLEITUNG

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2.1 ALLGEMEINE HINWEISE

ACHTUNG: Vor dem Entfernen von Gehäuseteilen und elektronischen Baugruppen muss das Gerät vom Netzanschluss getrennt werden!

Hinweise:

- Bei Aus- und Einbauarbeiten elektronischer Komponenten sind die eingangs dieser Service-Anleitung aufgeführten Richtlinien zur Behandlung von MOS-Bauteilen zu beachten.
- Um Beschädigungen an gelösten Kabelverbindungen und Steckern bei Ein- und Ausbauarbeiten zu verhindern, sind diese in den dafür vorgesehenen Aussparungen an Gehäuse- und Montageteilen zu versorgen.

2.1.1 Benötigtes Werkzeug

1 Kreuzschlitz-Schraubendreher	Grösse 0
1 Kreuzschlitz-Schraubendreher	Grösse 1
1 Kreuzschlitz-Schraubendreher	Grösse 2
1 Schraubendreher	Grösse 2
1 Schraubendreher	Grösse 3
1 Flachzange	
1 Pinzette	
1 Innensechskant-Schlüssel "Inbus"	Grösse 2
1 Innensechskant-Schlüssel "Inbus"	Grösse 3
1 Innensechskant-Schlüssel "Inbus"	Grösse 4
1 Innensechskant-Schlüssel "Torx"	Grösse T 8
1 Innensechskant-Schlüssel "Torx"	Grösse T10
1 Gabelschlüssel	Schlüsselweite 11
1 "ESE"-Arbeitsplatzausrüstung	Best.Nr.: 46200

Empfehlung: Arbeitsplatz mit einem Baumwolltuch auslegen, um Kratzspuren am Gerät zu vermeiden.

2.1.2 Zusammenbau

Der Zusammenbau erfolgt sinngemäss in umgekehrter Reihenfolge der nachstehend beschriebenen Ausbau-Anleitungen unter Beachtung der angeführten Montage-Hinweise.

2.2 GEHÄUSE

2.2.1 Oberes Deckblech

-> Fig. 2.1

- An der Geräte-Rückseite 5 Schrauben [1] lösen während die Abdeckung hinten leicht nach unten gehalten wird. (Das Abdeckblech wurde werkseitig leicht vorgespannt).

Montagehinweis:

Abdeckblech erst in die Nut der Frontleiste schieben und anschliessend hinten nach unten drücken und die Schrauben festdrehen.

2.2.2 Seitenblenden

-> Fig. 2.2

- Je 2 Schrauben [2] lösen.

B126:

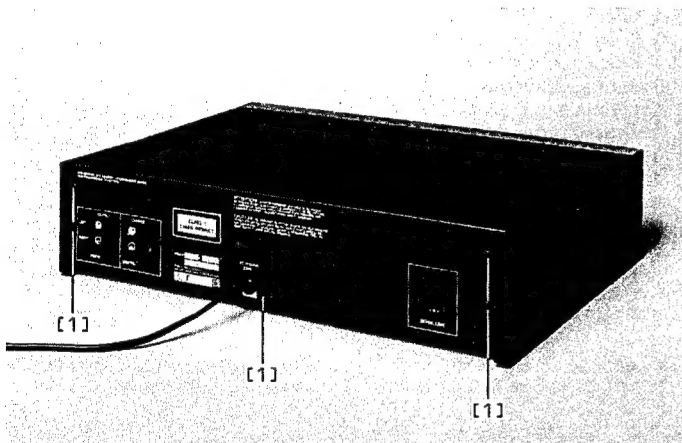


Fig. 2.1

B226-S:

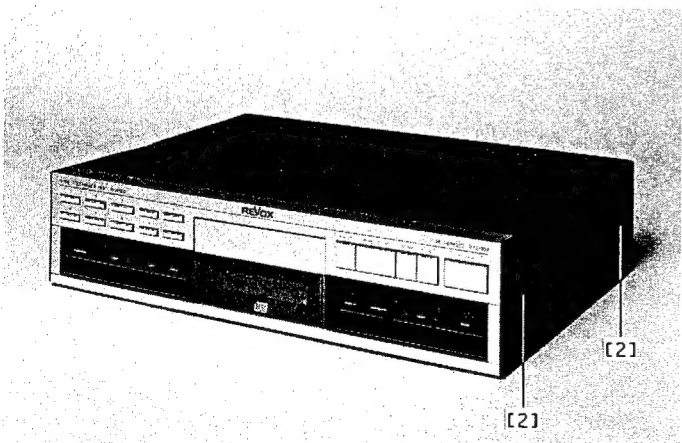
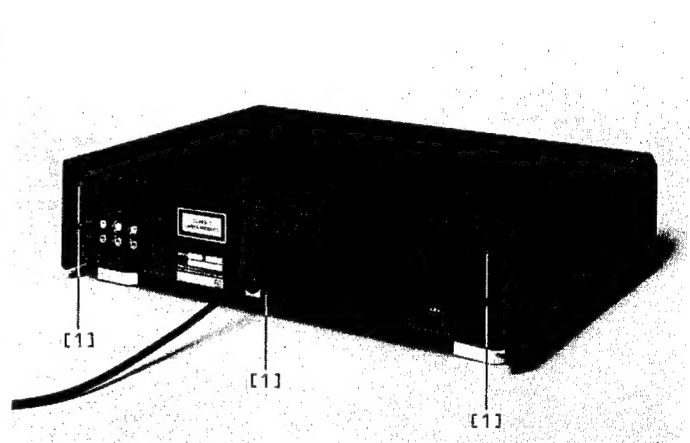
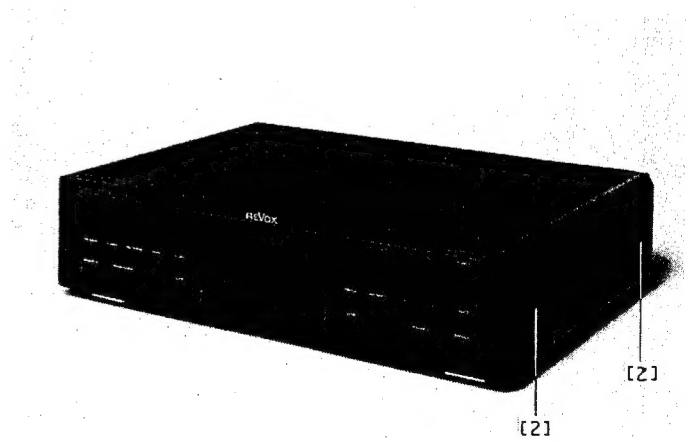


Fig. 2.2



2.3 BEDIENUNGSEINHEIT

→ Fig. 2.3 / Fig. 2.4

- Oberes Deckblech entfernen (Abschnitt 2.2.1).
- Seitenblenden entfernen (Abschnitt 2.2.2).
- Von Geräte-Unterseite:
 - 4 Schrauben [3] lösen.
- Von Geräte-Oberseite:
 - 2 Schrauben [4] mit Fächerscheibe und Masse-Kontaktfeder lösen.
 - 2 Schrauben [5] lösen.
- Bedienungseinheit nach vorne vom Gehäuse abheben.
- Kabelverbindungen lösen:
 - Verb.-Kabel [6] KEYBOARD LEFT → MICROPROCESSOR PCB
 - Verb.-Kabel [7] KEYBOARD RIGHT → MICROPROCESSOR PCB
 - Verb.-Kabel [8] LC-DISPLAY → MICROPROCESSOR PCB
 - Verb.-Kabel [9] Kopfhörerbuchse → DECODER PCB (nur B226-S)

2.3.1 LC-Display

→ Fig. 2.4

- Bedienungseinheit entfernen (Abschnitt 2.3).
- Beidseitig je eine Schnappklammer [10] unter angemessenem Kraftaufwand aus der Einraststellung biegen und das LC-Display aus der Bedienungseinheit heben.

2.3.2 Keyboard-Print • Kontaktmatten • Tasten

→ Fig. 2.4 / Fig. 2.5

- Bedienungseinheit entfernen (Abschnitt 2.3).
- Auf den Keyboard-Prints je 2 Schrauben [11] lösen.
- Schnappklammern sukzessive, von einer Seite beginnend, aus ihren Eingriffstellungen biegen und währenddessen den Keyboard-Print [12] vorsichtig nach oben abheben.

Vorsicht:

- Berührung der Gold-Schaltkontakte vermeiden.
- Bedienungseinheit nicht wenden: die Tasten können herausfallen.

Bei demontiertem Keyboard-Print [12] können die Kontaktmatten [13] und Tasten [14] nach oben entfernt werden. Die Tasten [15] der oberen Tastenreihe mit Alu-Kappen können mit leichtem Druck nach vorne aus der Halterung gedrückt werden.

Montagehinweise:

- Vor der Montage Partien wie Kontaktflächen an Keyboard und Schaltmatte, Display und Displayfenster mit fusselfreiem, sauberem Lappen von Staubansatz befreien.
- Vor dem Einsetzen des Keyboard-Prints die Kontaktmatten exakt in die Zentrierstifte und zwischen die Schnappklammern ausrichten.
- Sicherstellen, dass alle Schnappklammern über dem Print eingegriffen haben.

2.3.3 Kopfhörerbuchse (nur B226-S)

- Bedienungseinheit entfernen (Abschnitt 2.3).
- Sicherungsfeder aus Bronze entfernen.
- Schnappklammern aus ihrer Einraststellung drücken und die Buchse aus der Halterung ziehen.

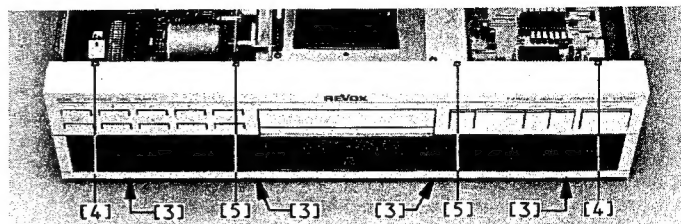


Fig. 2.3

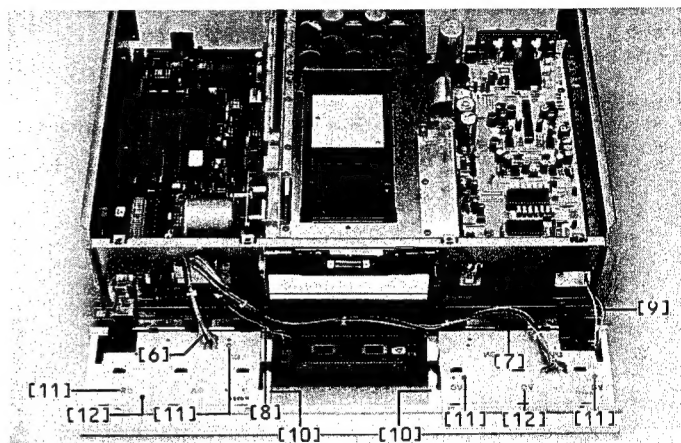


Fig. 2.4

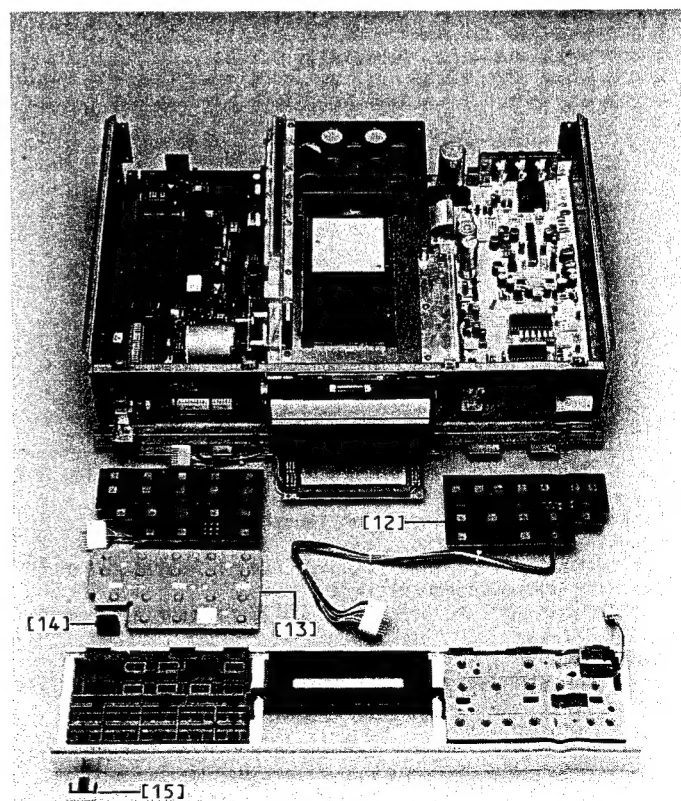


Fig. 2.5

2.4 LAUFWERK

2.4.1 Laufwerk austauschen

→ Fig. 2.6

- Oberes Deckblech entfernen (Abschnitt 2.2.1).
- Disk-Schublade ausfahren
- Den Kabelstrang [17] (Fig. 2.6) freilegen.
- Gerät umdrehen und auf die Oberseite legen.
- 4 Schrauben [18] lösen und das Laufwerk mit dem Laufwerkträger vorsichtig herausheben. Das Laufwerk kann in seiner Betriebslage abgelegt werden, ohne beschädigt zu werden.
- Kabelverbindungen [17] auftrennen.
- die 4 Schrauben [19] der 2 Laufwerkträger lösen. Das Laufwerk austauschen.

Montagehinweis:

- Streift nach der Montage die CD am Schubladen-Gehäuse, so ist das Laufwerk entsprechend zu justieren.

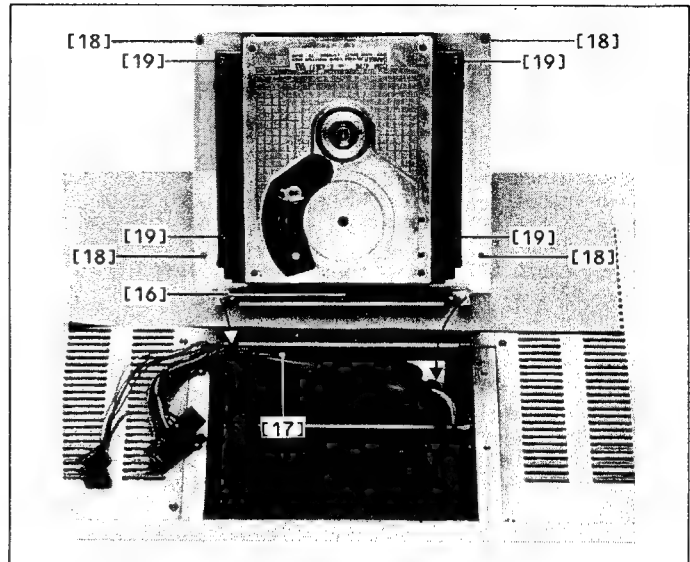


Fig. 2.6

2.4.2 CD-Schublade

→ Fig. 2.7

- Laufwerk und Laufwerkträger nicht entfernen! Zumindest den Laufwerkträger immer am ausgebauten Schubladengehäuse belassen. (Mechanische Stabilität; die Schubladenmechanik wurde werkseitig mit engen Toleranzen eingestellt).
- MICROPROCESSOR PCB entfernen (Abschnitt 2.5.2).
- DECODER PCB entfernen (Abschnitt 2.5.3).
- 6 Schrauben [20] lösen. Die ganze CD-Schublade mit Laufwerk kann nach hinten oben aus dem Gerät gehoben werden.

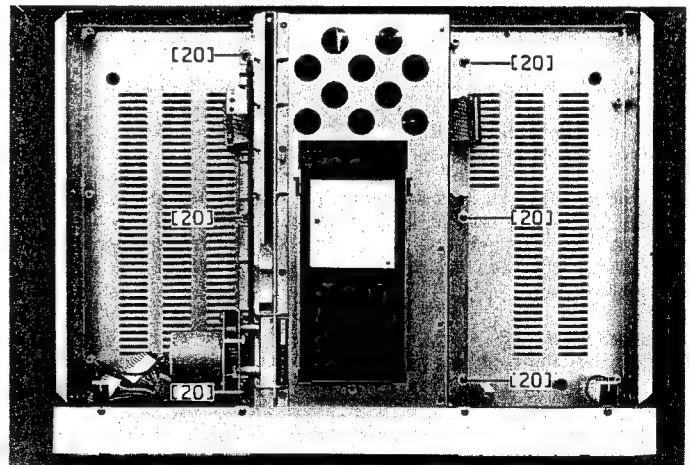


Fig. 2.7

2.4.3 Schubladen-Motor

→ Fig. 2.8

- Oberes Deckblech entfernen (Abschnitt 2.2.1).
- Linke Seitenblende entfernen (Abschnitt 2.2.2).
- Kabelverbindung lösen:
 - Kabelverb. [21] MICROPROCESSOR PCB → Schubladen-Motor
- Den Schwingungsbegrenzer [22] lösen.
- 3 Schrauben [23] lösen. Den Schubladen-Motor entfernen.

Montagehinweis:

- Den Schwingungsbegrenzer am Gewinde wieder mit Loctite sichern.

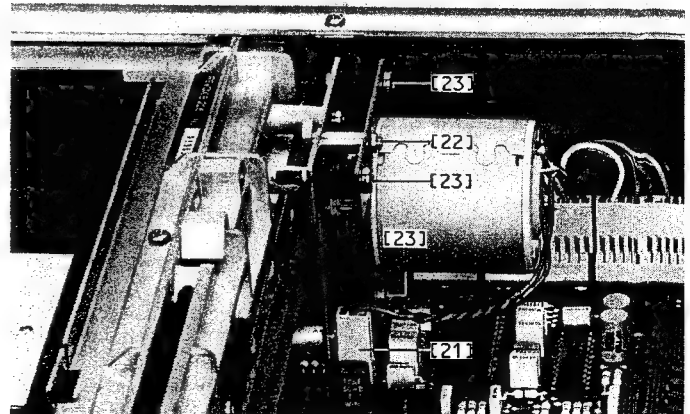


Fig. 2.8

2.5 ELEKTRISCHE BAUGRUPPEN

2.5.1 Transformator PCB 1.769.450/451/452

→ Fig. 2.9 / Fig. 2.10

- Oberes Deckblech entfernen (Abschnitt 2.2.1).
- Verbindungskabel [25] Transformator PCB → DECODER PCB lösen.
- Netzkabelzugentlastung [27] lösen.
- Die 4 Schrauben [28] lösen; der Transformator PCB kann nach hinten aus dem Gerät gezogen werden.

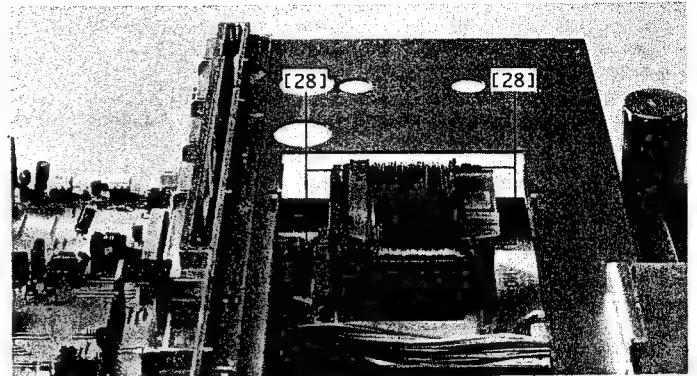


Fig. 2.9



Fig. 2.10

2.5.2 MICROPROCESSOR PCB 1.769.402/404

→ Fig. 2.11

- Oberes Deckblech entfernen (Abschnitt 2.2.1).
- Kabelverbindungen lösen:
 - Flachkabelverb. [29] MICROPROCESSOR PCB → DECODER PCB
 - Kabelverb. [30] MICROPROCESSOR PCB → KEYBOARD LEFT
 - Kabelverb. [31] MICROPROCESSOR PCB → KEYBOARD RIGHT
 - Kabelverb. [32] MICROPROCESSOR PCB → LC-DISPLAY
 - Kabelverb. [33] MICROPROCESSOR PCB → Schubladen-Motor
 - Kabelverb. [34] MICROPROCESSOR PCB → Laufwerk (siehe Abschnitt 2.4.1).
- 1 Schraube [35] lösen und die Mitnehmerlasche entfernen.
- 4 Schrauben [36] lösen und den MICROPROCESSOR PCB ca. 10 mm nach hinten ziehen.
- Kabelverbindung [34] MICROPROCESSOR PCB → Laufwerk durch die Öffnung im Schubladen-Gehäuse ziehen und flach über den Print legen.
- Den MICROPROCESSOR PCB vorsichtig nach hinten aus dem Gerät ziehen bis die Kerbe [37] mit der Gehäuserückwand bündig ist.
- Der Print kann nun aufgestellt und aus dem Gerät entfernt werden.

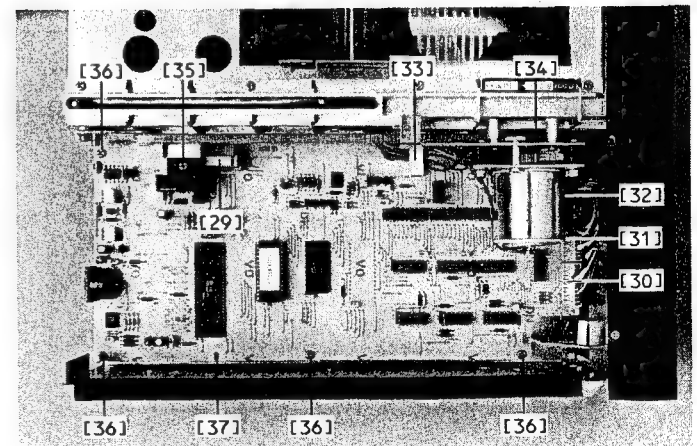


Fig. 2.11

2.5.3 DECODER PCB 1.769.421/422

→ Fig. 2.10 / Fig. 2.12

- Oberes Deckblech entfernen (Abschnitt 2.2.1).
- Kabelverbindungen lösen:
 - Flachkabelverb. [38] DECODER PCB → MICROPROCESSOR PCB
 - Verbindungskabel [25] Transformator PCB → DECODER PCB
 - Kabelverb. [39] DECODER PCB → Kopfhörerbuchse B226-S
 - Kabelverb. [40] DECODER PCB → ILLUMINATION BOARD B126
- 8 Schrauben [41] lösen und den DECODER PCB nach oben aus dem Gerät ziehen.

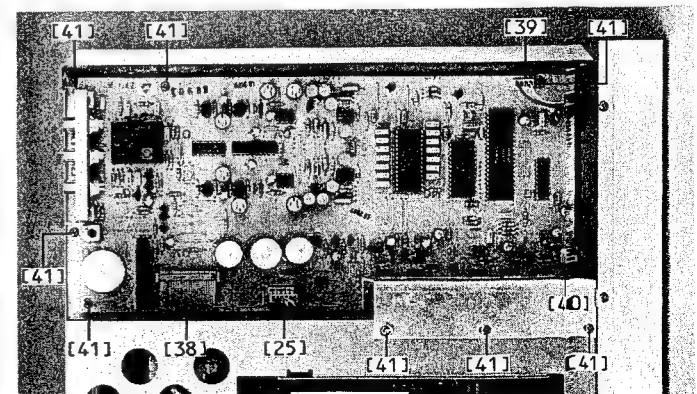


Fig. 2.12

2.5.4 LC-DISPLAY PCB 1.769.255/455

-> Fig. 2.13

- Oberes Deckblech entfernen (Abschnitt 2.2.1).
- Seitenblenden entfernen (Abschnitt 2.2.2).
- Bedienungseinheit entfernen (Abschnitt 2.3).
- 3 Schrauben [42] lösen und den Print oben anheben und aus den Führungen ziehen.

Montagehinweis:

- LC-DISPLAY mit einem fusselfreien und trockenen Lappen ohne Druck abwischen. Staubfrei einbauen.

2.5.5 ILLUMINATION PCB 1.769.565 (nur B126)

-> Fig. 2.12 / Fig. 2.13

- Oberes Deckblech entfernen (Abschnitt 2.2.1).
- Seitenblenden entfernen (Abschnitt 2.2.2).
- Bedienungseinheit entfernen (Abschnitt 2.3).
- Kabelverbindung [40] ILLUMINATION PCB -> DECODER PCB lösen.
- 2 Schrauben [43] lösen.

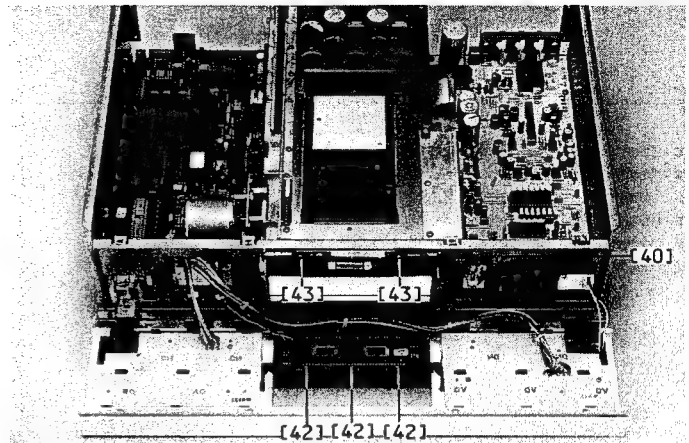


Fig. 2.13

2.5.6 SERVO PCB

-> Fig. 2.14 / Fig. 2.15

- Nach Abschnitt 2.4.1 vorgehen
- Das Laufwerk hochkant aufstellen, nie auf die Achse des Disc-Motors oder die Laser-Optik legen!
- Mit der einen Hand das Laufwerk halten, mit der anderen Hand die 4 Schrauben [44] lösen. (Werkzeug dazu -> Abschnitt 2.1.1).
- Die beiden Kabelverbindungen [45] und [46] lösen.

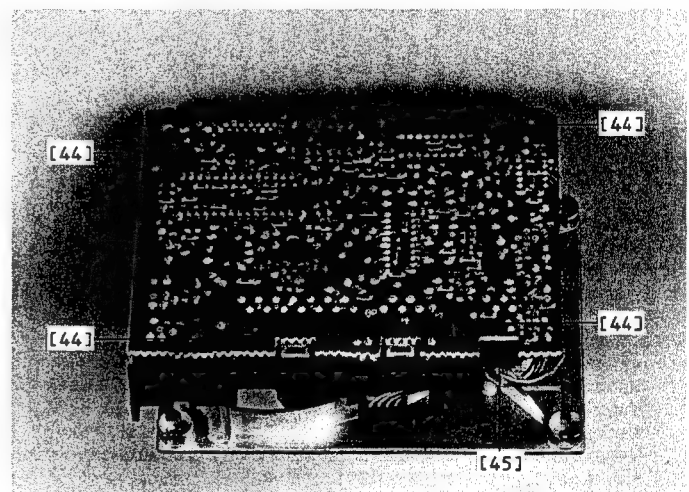


Fig. 2.14

2.5.7 Primär-Sicherung

- Oberes Deckblech entfernen (Abschnitt 2.2.1).
- Die Primär-Sicherung ist von oben zugänglich.
Sicherungstyp:
110 VAC = T 400 mA/250 V (SLOW)
220/240 VAC = T 200 mA/250 V (SLOW)

Montagehinweis:

- Nach einem Sicherungswechsel ist der Kunststoff-Berührungsschutz der Sicherung unbedingt wieder zu montieren.

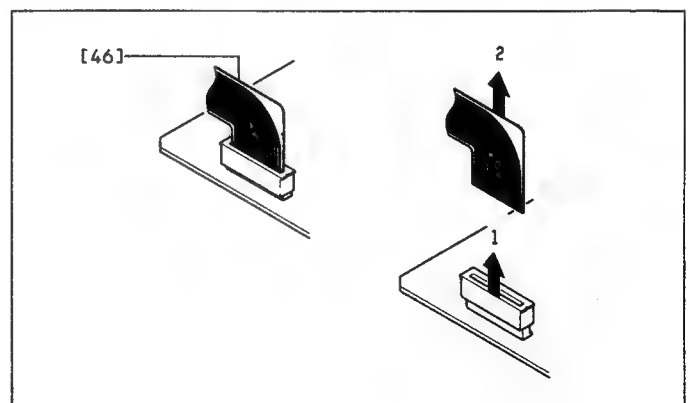


Fig. 2.15

3. FUNKTIONSBESCHREIBUNG

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3.1 DECODER PCB 1.769.421/422

Auf dem DECODER BOARD sind die folgenden Schaltungen untergebracht:

- Stabilisierung der Speisespannungen.
- Digitale Signalverarbeitung.
- Digitale Filterung.
- Digital/Analog Wandlung.
- Pegeleinstellung und Kopfhörerverstärkung.

3.1.1 Stabilisierung der Speisespannungen

-> Fig. 3.1

Die Speisespannungen (+5 V, -5 V, +5 VSTBY, -10 VSTBY, +12 V, -15 V) werden durch Spannungsregler (IC1 ... IC5) stabilisiert. Die +10 V- und -10 V-Speisespannungen für den Disc-Motor werden vor den 5 V-Stabilisatoren abgegriffen.

Die Spannungen +5 VSTBY und -10 VSTBY sind auch in ausgeschaltetem Zustand vorhanden. Sie versorgen das Mikroprozessorsystem und den IR-Empfänger im Stand-by-Betrieb mit Strom. Alle übrigen Speisespannungen werden durch den Mikroprozessor mit dem Signal PS0N ein- resp. ausgeschaltet. Zum Einschalten legt der Mikroprozessor das Signal PS0N auf +5 V, dadurch werden die Transistoren Q4, Q3 und Q2 leitend, die Längstransistoren Q1, Q5, Q6 und Q7 werden ebenfalls leitend.

Die Dioden D6, D8, D14 und D16 verhindern beim Ausschalten einen Polaritätswechsel der Speisespannungen.

Das mit D1, D2, R22 und C1 gebildete Signal SENSE überwacht die Sekundärspannung des Transformators. Fällt dieses Signal unter 4,3 V ab (Netzausfall), so werden die Transistoren Q11 und Q13 leitend, die Transistoren Q14 und Q15 werden sperrend, das Relais K1 fällt ab und schliesst die Audioausgänge nach Masse kurz (MUTE).

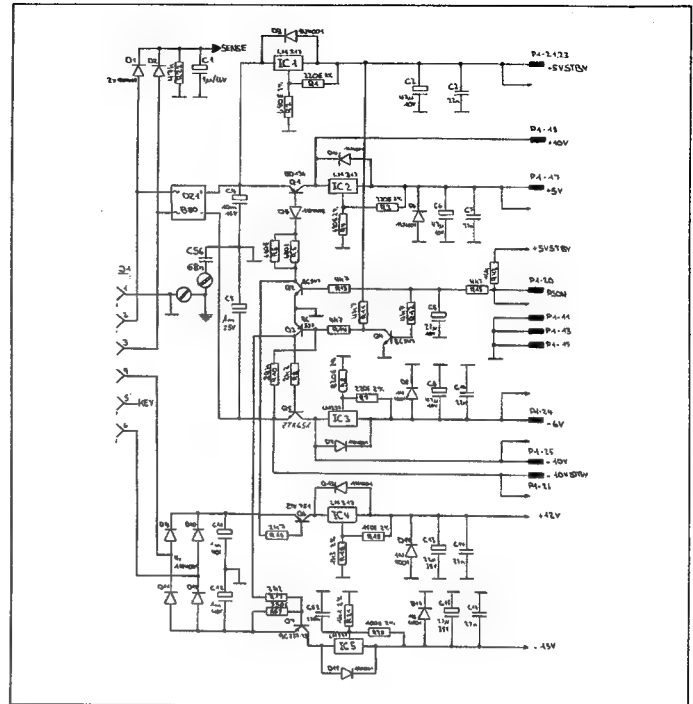


Fig. 3.1

3.1.2 Digitale Signalverarbeitung

-> Fig. 3.2

Das durch einen Bandpass (R45, C34, C35) gefilterte Signal HF wird in IC8 in Audiodaten und Subcodaten aufgeteilt. Ein integrierter PLL (R36, R49, R53, R54, C24, C25, Q16) regeneriert den Clock für die Audiodaten. Weiter ist IC8 für die Fehlererkennung und Fehlerkorrektur verantwortlich, das RAM (IC9) dient dabei als Zwischenspeicher.

Die Subcodaten (QDA, QRA, QCL) und der Word Select (SWAB/SSM) werden dem Mikroprozessor zugeführt. Das Signal DEEM erkennt eine Disc mit Preemphasis und schaltet die Höhenabsenkung der Analogverstärker entsprechend.

3.1.3 Digitale Filterung

-> Fig. 3.2

IC10 enthält neben der Hauptzeitbasis (Y1, 11,2896 MHz) Schaltungen zur linearen Interpolation von bis zu 8 unkorrigierbaren Abtastwerten, der Pegelabschwächung und der digitalen Filterung.

Aus den Daten von IC8 (SDAB, SCAB, EFAB, DAAB, CLAB, WSAB und XSYS) werden das serielle Ausgangssignal I²S (DABD, CLBD, WSBD) und das digitale Ausgangssignal (DOBM) generiert.

Durch eine Auflösung von 16 Bit mit Vierfach-Oversampling und anschließender digitaler Filterung wird eine effiziente Unterdrückung von Störfrequenzen oberhalb 20 kHz erreicht.

Der Mikroprozessor senkt mit dem Signal ATSB (aktiv "L") während des Suchlaufs den Ausgangspegel um 12 dB. Mit dem Signal MUSB (aktiv "L") wird der Ausgang langsam stummgeschaltet (soft muting).

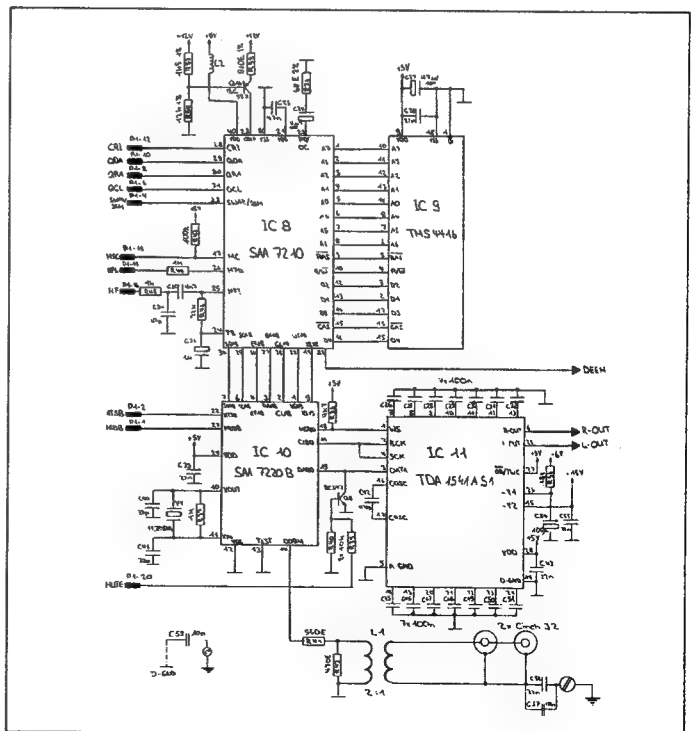


Fig. 3.2

3.1.4 Digital/Analog Wandlung

→ Fig. 3.2

IC11 decodiert den seriellen I²S-Datenstrom (DATA), ordnet die 16 Bit-Worte kanalweise und wandelt die Daten des linken und rechten Kanals gleichzeitig (kein Zeitmultiplex-Verfahren) in analoge Werte.

Die analogen Ausgänge (R-OUT, L-OUT) gelangen über ein phasenlineares Bessel-Tiefpassfilter mit umschaltbarer Charakteristik (Signal DEEM, für CD's mit/ohne Preemphasis) zum Leitungstreiber.

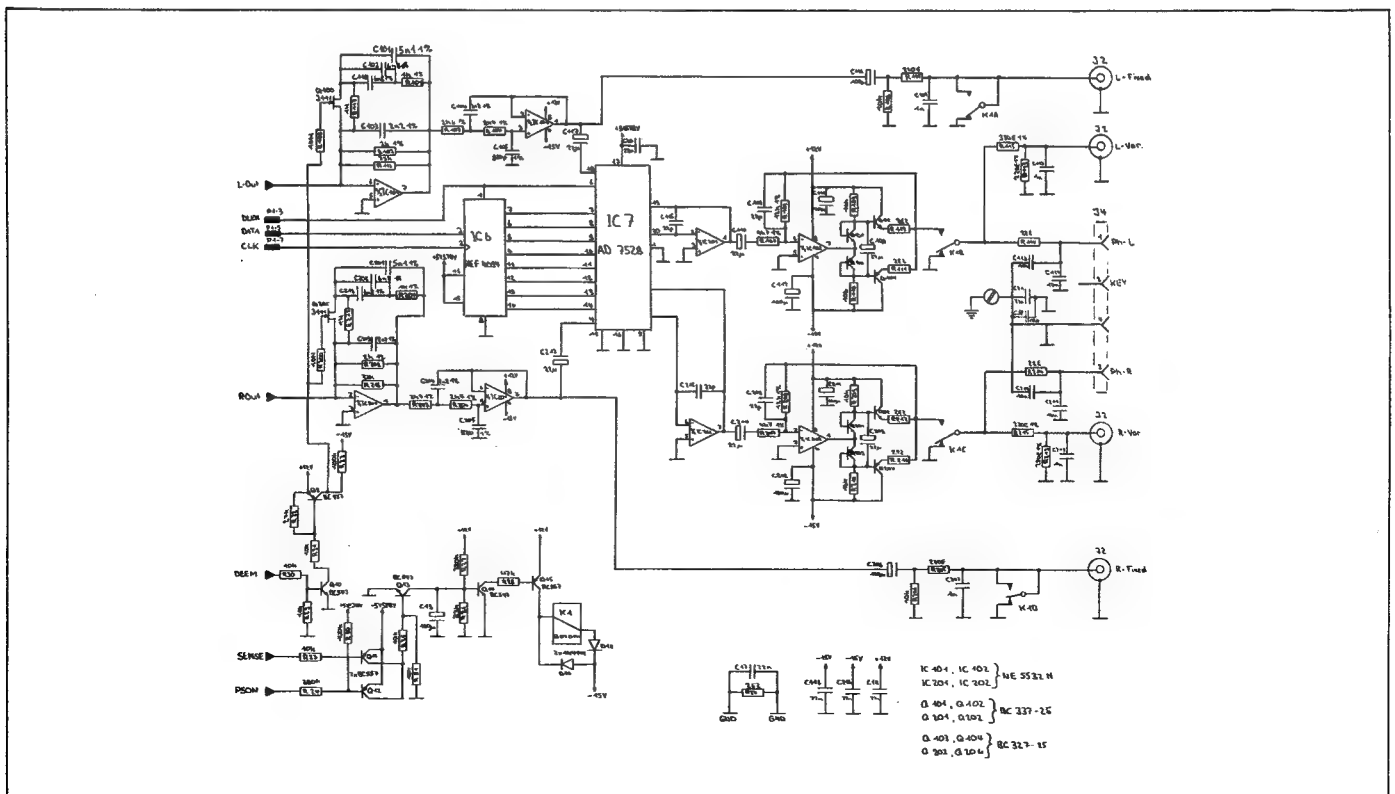
3.1.5 PegelEinstellung und Kopfhörerverstärkung B226-S

→ Fig. 3.3

Die vom Mikroprozessor über die Datenleitung ausgegebenen Sollwerte der Volumen-Steuerung werden in IC6 (Schieberegister / Latch) zwischengespeichert und steuern parallel einen Dual Digital/Analog-Wandler (IC7). Die analogen Ausgänge dienen als Abschwächer vor den Operations-Verstärkern (IC102, IC202), deren Verstärkung fest eingestellt ist.

Für spezifische Anwendungen kann die fest eingestellte maximale Ausgangsspannung ($2 V_{eff}$) erhöht werden. Dazu ist der Widerstand R108 (bzw. R208) zu vergrößern. Das Verhältnis R_{alt} zu R_{neu} ist ein Mass für die Erhöhung der Verstärkung (z.B. $R108 = 24 k\Omega \rightarrow +6 dB$); die maximale Aussteuerung der Operations-Verstärker ist zu berücksichtigen (Clipping!).

Um Ein- und Ausschaltknackse zu verhindern, werden alle Ausgänge im ausgeschalteten Zustand über das Relais K1 nach Masse kurzgeschlossen. Der Mikroprozessor steuert das Relais mit dem Signal PS0N. Beim Einschalten wird PS0N "H" und Q12 und Q13 sperren. Der Kondensator C19 wird über R27 langsam aufgeladen und nach ca. 2 Sekunden werden Q14 und Q15 leitend, das Relais K1 zieht an. Beim Ausschalten wird PS0N "L", Q12 und Q13 leiten, der Kondensator C19 wird entladen, Q14 und Q15 sperren und das Relais K1 fällt sofort ab.



3.2 MICROPROCESSOR PCB 1.769.402/404

Auf dem MICROPROCESSOR PCB sind die folgenden Schaltungen untergebracht:

- Mikroprozessor-System
- Schubladenmotor-Steuerung
- IR-Empfänger
- Serial Link

3.2.1 Mikroprozessor-System

→ Fig. 3.4

Verwendet wird der Mikroprozessor MC6303Y (IC18). Externe Speicher sind IC16 (ROM 32K x 8) und IC15 (RAM 2K x 8). Die Adressen-Kontroller (IC11, IC8, IC12) decodieren gemeinsam die sechs höchstwertigen Bits (A10 ... A15) des Adressen-Bus und generieren die Select-Signale (SEL-ROM, SEL-RAM, SEL-PORT, EPORT1 ... EPORT4).

Mit IC17 ist eine Reset-Schaltung realisiert. Sie startet den Mikroprozessor beim Anlegen der Netzspannung mit einem RESET.

Das ganze Mikroprozessorsystem und die I/O-Ports sind über die +5 VSTBY Speisespannung immer mit Spannung versorgt, auch wenn das Gerät mit der Taste POWER ausgeschaltet wurde. Dadurch ist es möglich, dass der Mikroprozessor die Speisespannungen der restlichen Baugruppen mit dem Signal PSON ein- und ausschaltet.

Interne I/O Ports

Durch Drücken der Taste "LOAD" entsteht an Pin8 ein NMI-Impuls, dieser initialisiert den Mikroprozessor, so dass das Mikroprozessorsystem bei einem undefinierten Zustand mit der Taste LOAD neu gestartet werden kann.

Über die Ports BIBUSIN und BIBUSOUT kann der Mikroprozessor mit einem an der Buchse SERIAL LINK angeschlossenen REVOX-Controller B200 oder mit einem B206 IR-Empfänger kommunizieren.

Die Signale DRAW-B (eingefahren) und DRAW-F (ausgefahren) geben die Position der CD-Schublade an. Mit den Signalen DRAWIN und DRAWOUT fährt der Mikroprozessor die Schublade ein resp. aus. Das Signal DRAWSNSE überwacht den Strom des Schubladen-Motors, bei zu grossem Strom (Hindernis) wechselt der Mikroprozessor die Drehrichtung des Motors. Mit dem Signal RE-FIL zählt der Mikroprozessor im Suchlauf die Spuren, und das Signal TL-LAT ist "L", wenn sich der Laser-Abtaster nicht mehr in der Spur befindet.

Über die Eingänge QDATA, QCL, QRA und SWAB/SSM liest der Mikroprozessor den Subcode der Disc, und mit dem Ausgang MUTE schaltet er bei CD-ROM-Platten die Analogausgänge stumm. Der Digital-Ausgang bleibt aktiviert, so dass darüber Daten von CD-ROM-Platten ausgegeben werden können.

Externe I/O Ports

Über die Ausgänge P0 ... P5 und die Eingänge P10 ... P14 (IC5, IC7) fragt der Mikroprozessor die Tastatur ab.

Die Signale RE, RP und TL informieren über die Position des Laser-Abtasters. Mit SI bewirkt der Mikroprozessor eine Start-up-Prozedur, die Laser-Diode und der Fokus-Regelkreis werden aktiviert.

Die Ausgänge B0 ... B3 (IC14) steuern den Radial-Regelkreis, das Signal MUSB schaltet im Suchlauf alle Ausgänge stumm und mit ATSB wird der Ausgangspegel um 12 dB gesenkt.

IR-REC wird für ca. 1 Sekunde auf "H" geschaltet, wenn der Mikroprozessor einen IR-Befehl empfangen hat.

IC4 steuert mit seinen Ausgängen (DLEN-1, DLEN-2, DATA und CLK) die Treiberbausteine des LC-Displays.

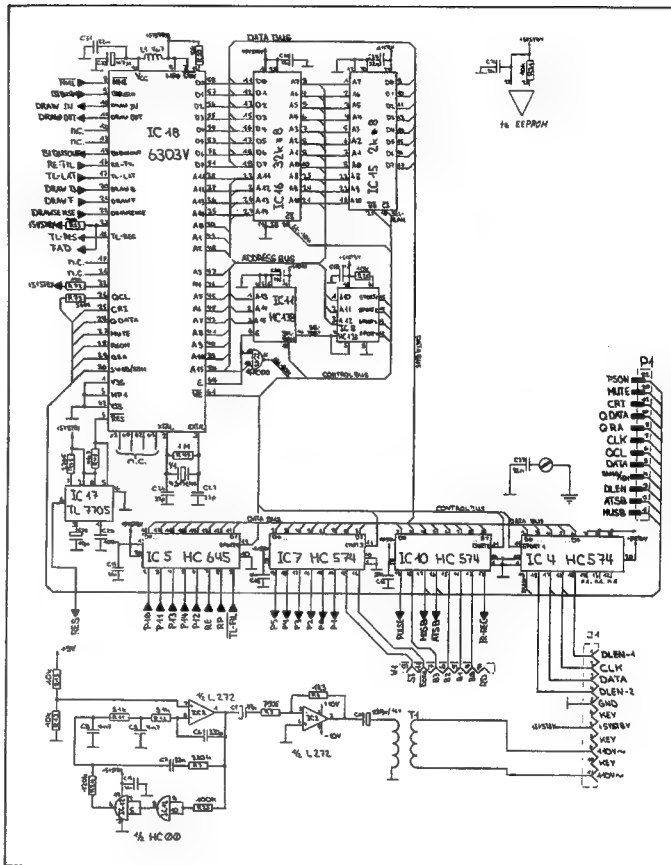


Fig. 3.4

3.2.2 Schubladenmotor-System

→ Fig. 3.5

Der Schubladenmotor-Verstärker (IC14, Q1, Q2) wird vom Mikroprozessor mit den Signalen DRAWIN und DRAWOUT angesteuert. Wird die Schublade während des Ein- oder Ausfahrens blockiert, so steigen der Motorstrom und die Motorspannung. Das Signal DRAW SENSE wird daraufhin "L", und der Mikroprozessor ändert die Richtung der Schubladen-Bewegung.

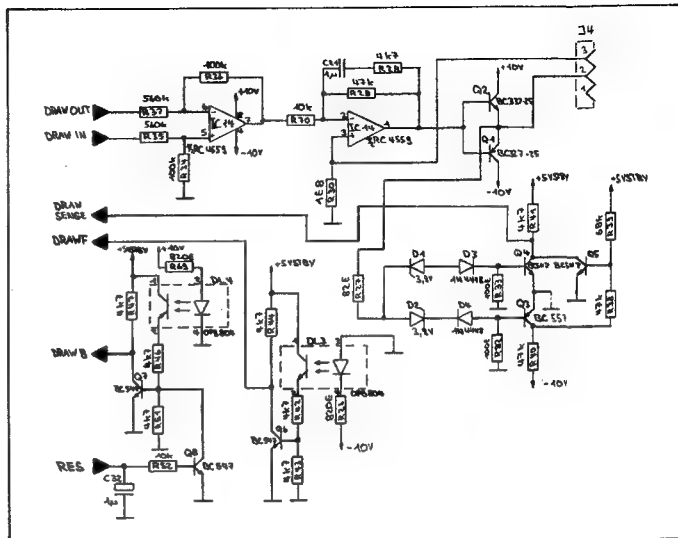


Fig. 3.5

3.2.3 IR-Empfänger

→ Fig. 3.6

Mit der IR-Empfängerdiode (DP1) empfangene IR-Befehle werden im Decoder (IC1) decodiert und über die Leitung BIBUSIN zum Mikroprozessor gesendet. Dieser quittiert den Empfang mit IR-REC, die rote LED (DL1) im IR-Empfängerfenster leuchtet für ca. 1 Sekunde auf.

3.2.4 Serial Link

→ Fig. 3.6

Über die Buchse SERIAL LINK können Steuerbefehle empfangen und Status-Rückmeldungen gesendet werden. An ihr können die REVOX-Geräte B200 Audio/Video Controller oder B206 als IR-Empfänger angeschlossen werden.

Anschluss 3 der Buchse führt das serielle Datensignal, Anschluss 1 Masse und Anschluss 5 die Speisespannung +5 VSTBY.

Der interne IR-Empfänger kann mit einer Spannung von 5 V zwischen den Anschlüssen 4 und 2 ausgeschaltet werden. Dies kann auch mit der auf die Buchse geführten Speisespannung geschehen: Anschluss 1 mit Anschluss 2 und Anschluss 4 mit Anschluss 5 verbinden.

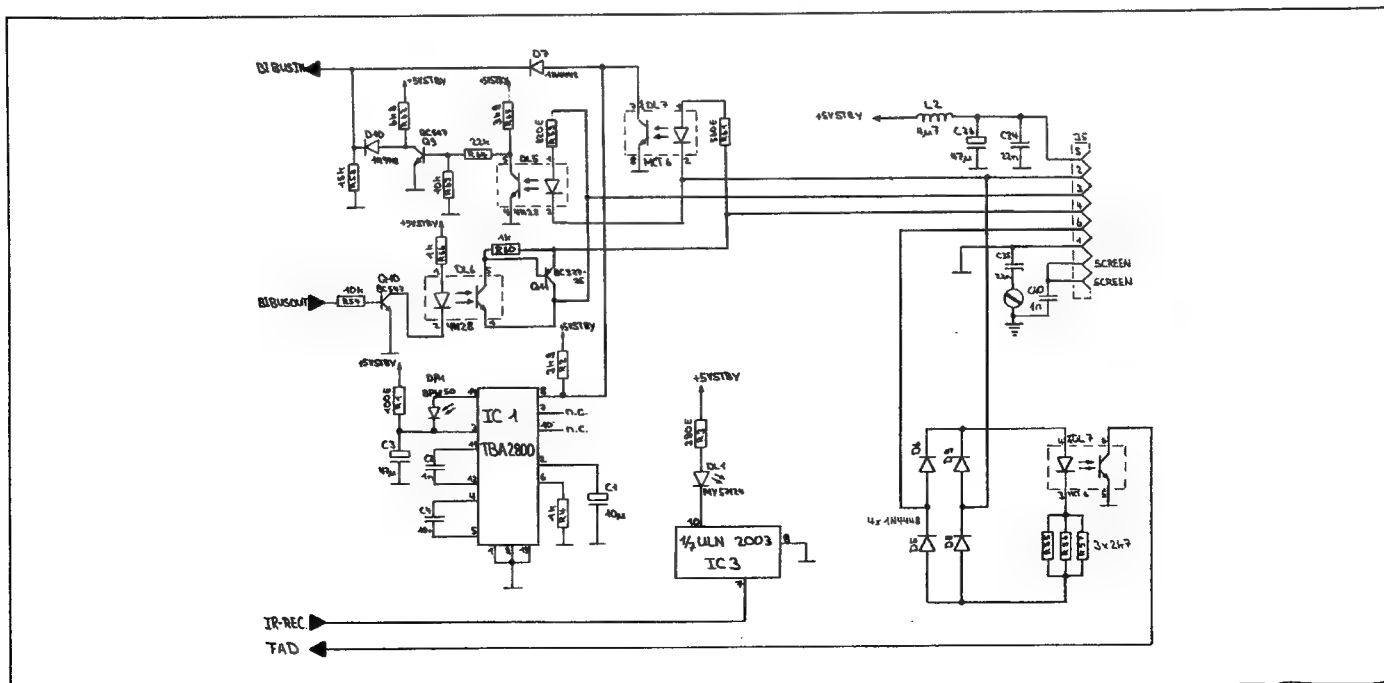


Fig. 3.6

3.3 SERVO PCB

-> Fig. 3.7

Auf dem SERVO PCB sind die folgenden Schaltungen untergebracht:

- Laserstrom-Steuerung
- Signal Prozessor
- Fokus Regelung
- Radial Regelung
- Automatic Gain Control (AGC)
- Disc Motor Regelung

3.3.1 Laserstrom-Steuerung

Das Signal LO steuert über den Transistor Q 6108 den Strom durch die Laserdioden. Die Monitordiode gibt eine der Intensität des Lasers proportionale Spannung (LM) für den Laserstrom-Regelkreis in IC 6101 (TDA 5708) ab. Mit dem Trimpotentiometer R 3106 lässt sich die Laser-Intensität einstellen.

3.3.2 Signal-Prozessor

Der Signal-Prozessor IC 6101 (TDA 5708) bildet aus den vier Fotodioden-Strömen (D1 ... D4) die Radialfehler-Signale RE1 und RE2 für die Radialfehler-Regelung in IC 6102 (TDA 5709), sowie die Regelsignale FE und FE_{LAG} für die Fokusregelung.

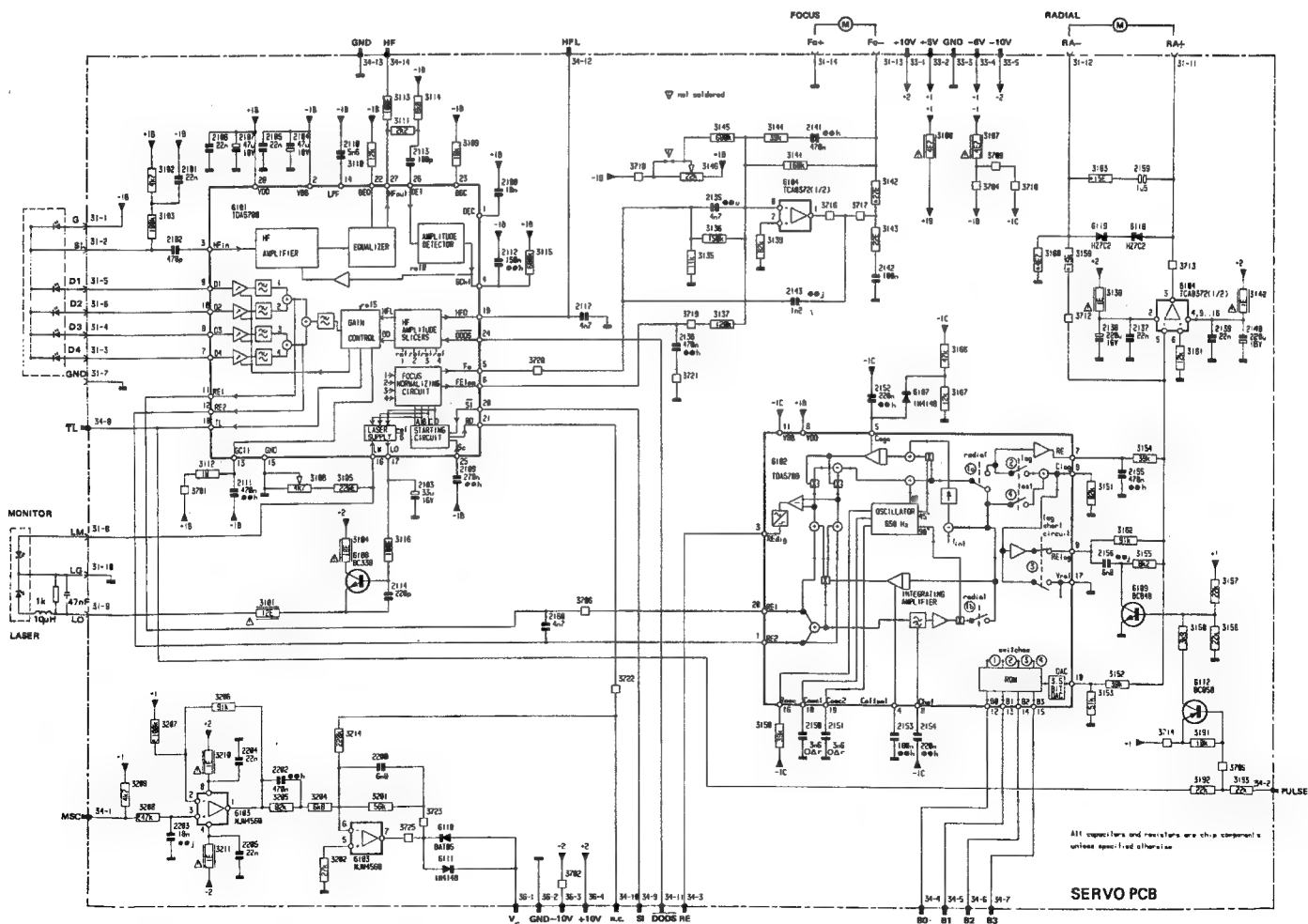


Fig. 3.7

3.3.3 Fokus-Regelung

Die in IC 6101 (TDA 5708) aus den Strömen der Empfängerdioden D1 bis D4 gebildeten Fokus-Regelsignale FE und FE_{LAG} werden im als LEAD/LAG-Verstärker geschalteten Leistungsverstärker IC 6104 Pin 1,7,8 (TCA 0372) verstärkt und steuern den Antrieb der Fokus-Linse.

3.3.4 Radial-Regelung

Um der Spur auf der Disc folgen zu können ist der Laser-Abtaster in einem Dreharm montiert, dessen Antrieb ähnlich dem eines Drehspul-Instrumentes konzipiert ist. Die beiden Radialfehler-Signale RE1 und RE2 werden in IC 6102 (TDA 5709) verstärkt und ausgewertet. Der nachgeschaltete LEAD/LAG-Leistungsverstärker IC 6104 Pin 3,5,6 (TCA 0372) steuert den Radialmotor.

3.3.5 Automatic Gain Control (AGC)

Eine in IC 6102 (TDA 5709) realisierte Schaltung hält die Bandbreite und damit auch die Verstärkung des Radialregelkreises konstant.

Ein 650 Hz-Sinussignal (C 2150, C 2151, R 3150) wird in den Radialregelkreis eingespiesen. Verändert sich die Verstärkung, so verändert sich auch die Phasenlage des zurückkehrenden Signals gegenüber dem eingespeisten Signal. Ein integrierter Phasendetektor vergleicht die beiden Signale und bestimmt so den Verstärkungsfaktor.

3.3.6 Discmotor-Regelung

Um den Datenstrom von der Compact Disc möglichst konstant zu halten, wird die Drehzahl der Disc geregelt. Abhängig von der Position des Laser-Abtasters wird die Umfangsgeschwindigkeit eingestellt. Das Drehzahl-Korrektur-Signal MSC wird im Decoder (IC8 auf DECODER BOARD 1.769.421/422) gebildet. Dieses pulsbreitenmodulierte Signal hat im Abspielmodus eine Einschaltdauer von etwa 50%, während der Startphase (Hochdrehen der Disc) für ca. 0,2 Sekunden 98%. In IC 6103 wird das Signal in einem Verstärker zum Discmotor-Regelsignal VC geformt.

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4.1 ALLGEMEINE HINWEISE

VORSICHT: Elektrisierungsgefahr bei geöffnetem Gerät!
Teile im Gerät führen Netzspannung.

Von STUDER REVOX angelieferte Module können ohne Abgleicharbeiten in das Gerät eingesetzt werden.

4.1.1 Benötigte Messgeräte

- Kathodenstrahl-Oszilloskop
- Digitalvoltmeter
- Test-CD Nr.3 Best. Nr.:46240
- Test-CD Nr.5A Best. Nr.:46241
- Glas-CD für Optikeinstellungen Best. Nr.:46242
- NF-Voltmeter
- autom. Klirrfaktormessbrücke
- Messfilter (für Klirrfaktormessung)
- Tiefpassfilter 30 kHz
- A-Bewertungsfilter
- Abgleichschraubendreher
- "ESE"-Arbeitsplatzausrüstung Best. Nr.:46200

4.2 MESSPUNKTE

4.2.1 Vorbereitungen

- Netzstecker ziehen.
- Oberes Deckblech entfernen (Abschnitt 2.2.1).
- Gerät wieder ans Netz anschliessen.

Bezeichnungen:

In den nachfolgenden Tabellen sind die Signalnamen oder Anschlüsse von Bauelementen aufgeführt. Dabei bedeuten:

C.Q1 = Kollektor von Transistor Q1

B.Q1 = Basis von Transistor Q1

E.Q1 = Emitter von Transistor Q1

R111/112 = gemeinsames Potential der Widerstände R111 und R112.

4.2.2 DECODER BOARD PCB 1.769.421/422

→ Fig. 4.1

	Name	POWER ON Umin.	Ripple	POWER OFF Umin.	Ripple
1	SENSE	+ 9.2 V	1.4 V	+11.2 V	2.0 V
2	PSON	+ 4.4 V		0.0 V	
3	DZ1 (+)	+10.4 V	0.4 V	+13.2 V	0.1 V
4	DZ1 (-)	-11.4 V	0.6 V	-15.8 V	
5	C.Q1	+ 9.9 V	0.5 V	0.0 V	
6	B.Q1	+ 9.2 V	0.5 V	+13.0 V	0.1 V
7	C.Q2	0.0 V		+25.5 V	
8	B.Q2	- 0.7 V		0.0 V	
9	C.Q3	- 0.1 V		-25.0 V	
10	B.Q3	+ 0.7 V		+ 0.9 V	
11	C.Q4	0.1 V		+ 3.0 V	
12	B.Q4	+ 0.7 V		0.0 V	
13	C.Q5	-11.2 V	0.5 V	+ 0.2 V	
14	B.Q5	-10.7 V	0.5 V	-24.0 V	
15	E.Q6	+16.5 V	2.1 V	+22.5 V	
16	C.Q6	+17.0 V	2.1 V	+ 0.5 V	
17	E.Q7	-22.0 V	0.6 V	-26.5 V	
18	C.Q7	-21.5 V	0.6 V	0.0 V	
19	+5 VSTBY	+ 5.2 V		+ 5.2 V	
20	+5 V	+ 5.2 V		0.0 V	
21	-5 V	- 5.2 V		0.0 V	
22	+12 V	+12.0 V		0.0 V	
23	-15 V	-15.0 V		0.0 V	

→ Fig. 4.2

→ Fig. 4.3

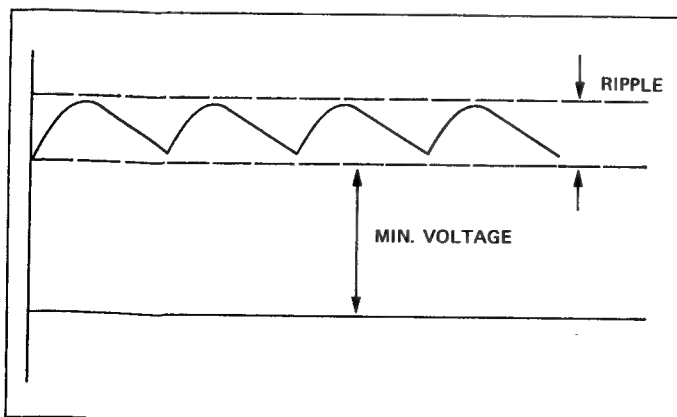


Fig. 4.2

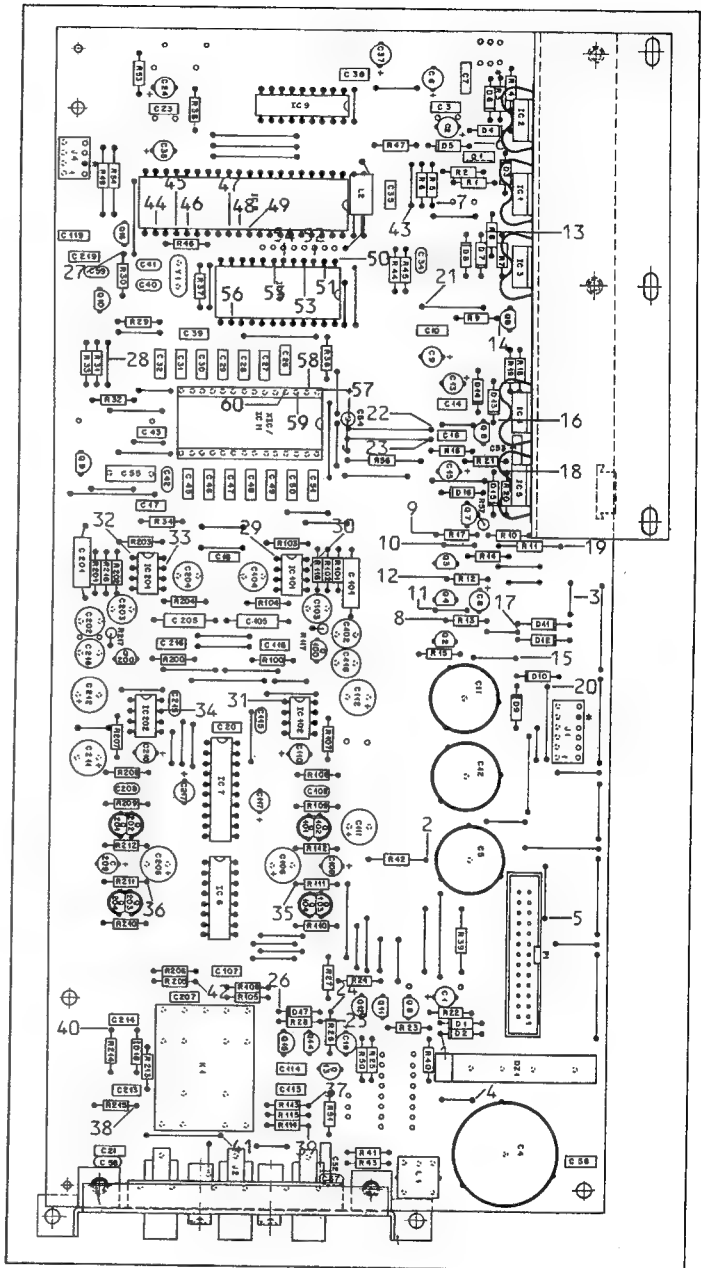


Fig. 4.1

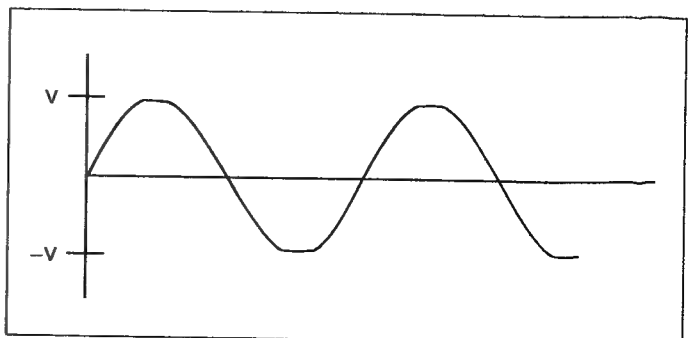


Fig. 4.3

	Name	POWER ON	POWER OFF
24	C.Q13	+ 0.7 V	0.0 V
25	C.Q14	+ 0.1 V	0.0 V
26	C.Q15	+12.0 V	0.0 V

	Name	PREEMPHASIS YES	PREEMPHASIS NO
27	DEEM	+ 4.0 V	0.0 V
28	C.Q9	+12.0 V	-15.0 V

- Test-CD Nr.3 einlegen und Track 4/8 (1 kHz, 0dB) abspielen.
- Mit Kathodenstrahl-Oszilloskop messen.

	Name	Unom.	Umin.	FREQUENCY
29	IC 101: pin 1	7.0 Vpp	1.0 Vpp	1 kHz, sine-wave
30	pin 7	7.0 Vpp	1.0 Vpp	1 kHz, sine-wave
31	IC 102: pin 1	7.0 Vpp		1 kHz, sine-wave
32	IC 201: pin 1	7.0 Vpp	1.0 Vpp	1 kHz, sine-wave
33	pin 7	7.0 Vpp	1.0 Vpp	1 kHz, sine-wave
34	IC 202: pin 7	7.0 Vpp		1 kHz, sine-wave
35	R111/112	18.0 Vpp		1 kHz, sine-wave
36	R211/212	18.0 Vpp		1 kHz, sine-wave
37	L-VAR	7.0 Vpp		1 kHz, sine-wave
38	R-VAR	7.0 Vpp		1 kHz, sine-wave
39	PH-L	18.0 Vpp		1 kHz, sine-wave
40	PH-R	18.0 Vpp		1 kHz, sine-wave
41	L-FIXED	7.0 Vpp		1 kHz, sine-wave
42	R-FIXED	7.0 Vpp		1 kHz, sine-wave

	Name	Umin.	REFER TO:
43	MSC		Fig. 4.5
44	IC 8:		
45	pin 22	+ 2.6 V	
46	pin 24	+ 1.6 V	
47	pin 25	DC: 1.6 V	
48	pin 29	AC: 1.5 Vpp	Fig. 4.4
49	pin 30		Fig. 4.4
50	pin 31		Fig. 4.4
51	IC 10:		Fig. 4.6
52	pin 1		Fig. 4.6
53	pin 2		Fig. 4.6
54	pin 3		Fig. 4.6
55	pin 4		Fig. 4.6
56	pin 6		Fig. 4.6
57	pin 7		Fig. 4.6
58	pin 14		Fig. 4.7
59	IC 11:		Fig. 4.8
60	pin 1		Fig. 4.8
	pin 2		Fig. 4.8
	pin 3		Fig. 4.8
	pin 4		Fig. 4.8

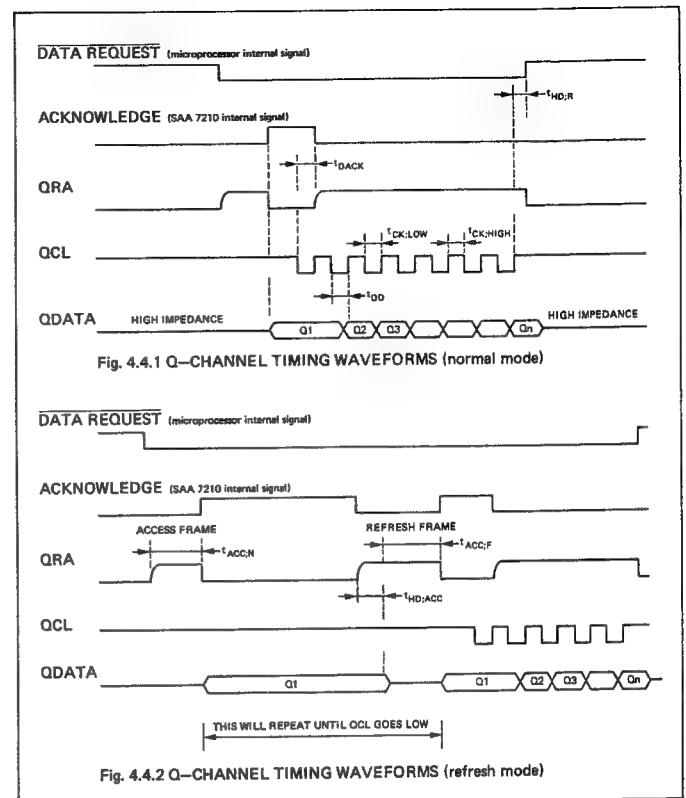


Fig. 4.4

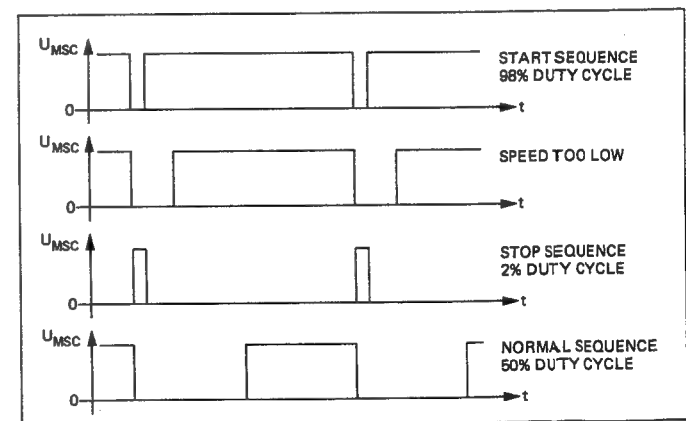


Fig. 4.5

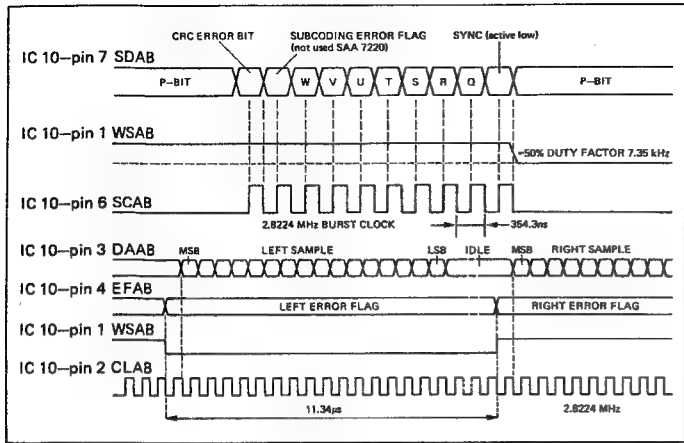


Fig. 4.6

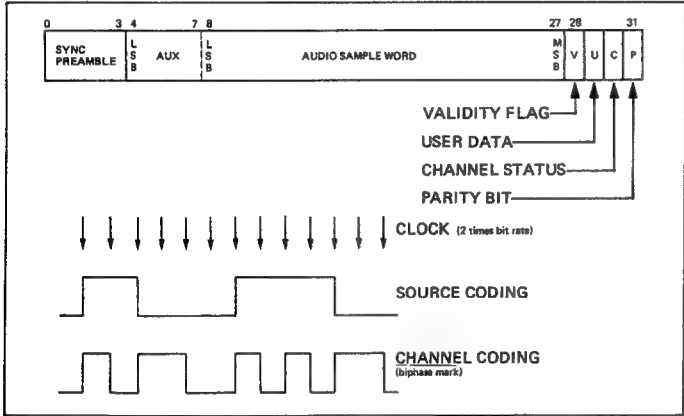


Fig. 4.7

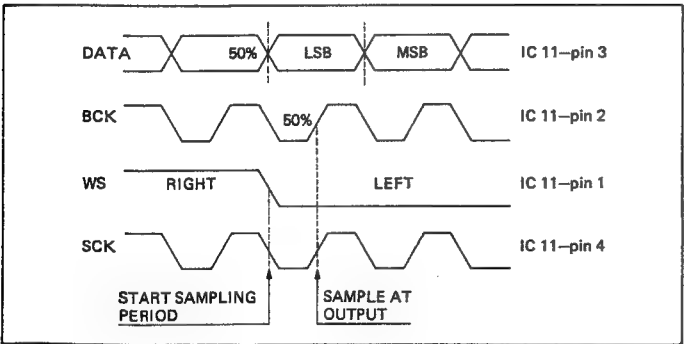


Fig. 4.8

Auswahlverfahren für R52 (Decoder PCB):

→ Fig. 4.9...Fig. 4.11

Die hier beschriebenen Schritte sollten an folgenden Prints durchgeführt werden:

- B126 bis Serienr. 7815: 1.769.421.00
- B226-S bis Serienr. 101669: 1.769.422.00

Vorgehen:

- 2 Stecksocket 53.03.0218 auf den Print einlöten.
- Beim Decoder IC 8 zwischen Pin 33 (SWAB/SSM) und Masse einen Kondensator C60 33pF 59.34.2330 auf der Rückseite anlöten.

In kaltem Zustand durchführen:

- Test-CD Nr. 5A einlegen.
- Der Wert des Pull-up Widerstands R52 wird mit Hilfe eines Widerstandnetzwerkes und eines Drehschalters ermittelt, damit der positive Winkel des PLL-Fangbereichs bei 55° liegt.
- Drehschalter S in Stecksocket für R52 einstecken, wobei das Verbindungskabel zwischen Print und Drehschalter nicht mehr als 0,2 m lang sein sollte.
- Den Schalter nach rechts drehen, bis EFAB-Pulse (Pin 36) vorhanden sind (ca. 5-10 sec in jeder Stellung lassen).
- Anhand der Skala des Drehschalters den Wert für R52 ablesen.
- Mit der Test-CD Nr. 5A (Track 9,17) überprüfen, ob EFAB-Pulse oder "Knackser" vorhanden sind.

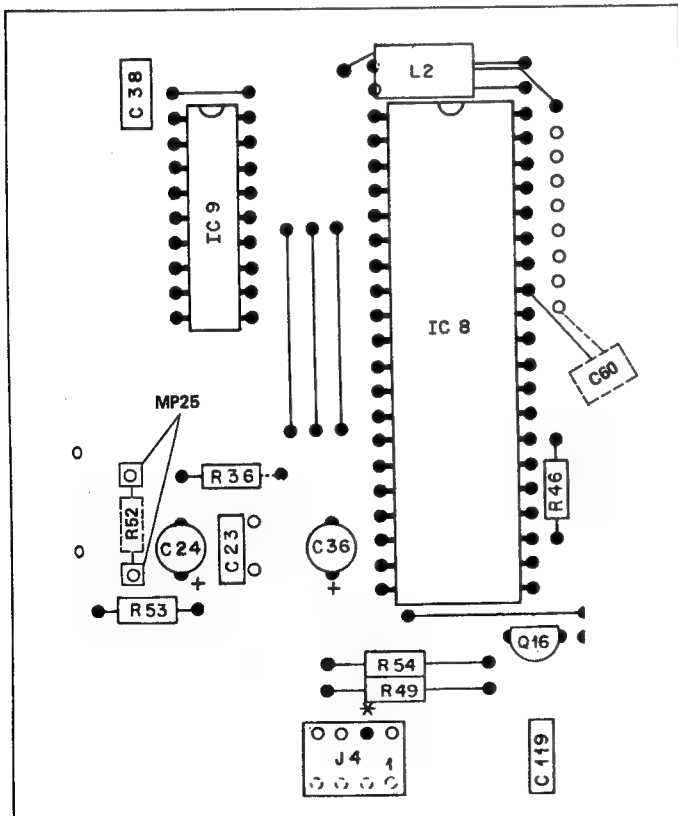


Fig. 4.9

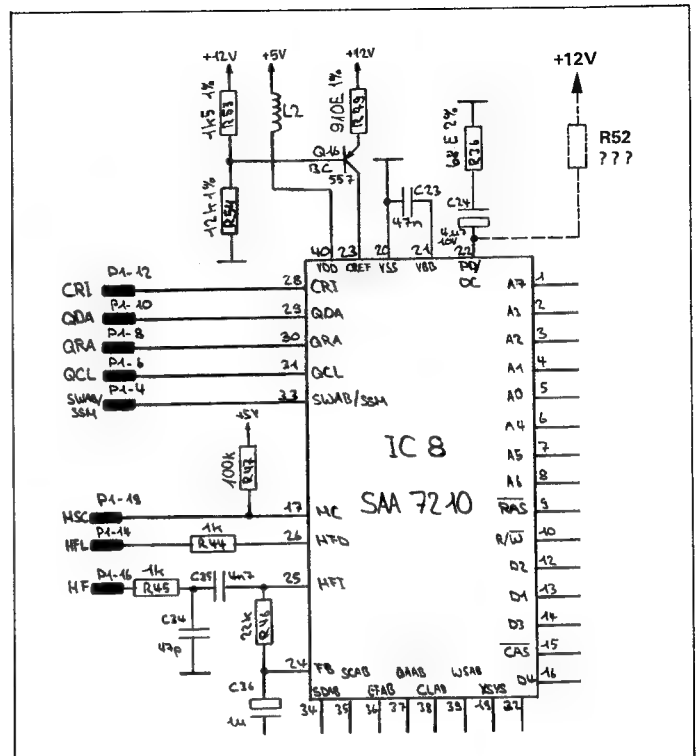


Fig. 4.10

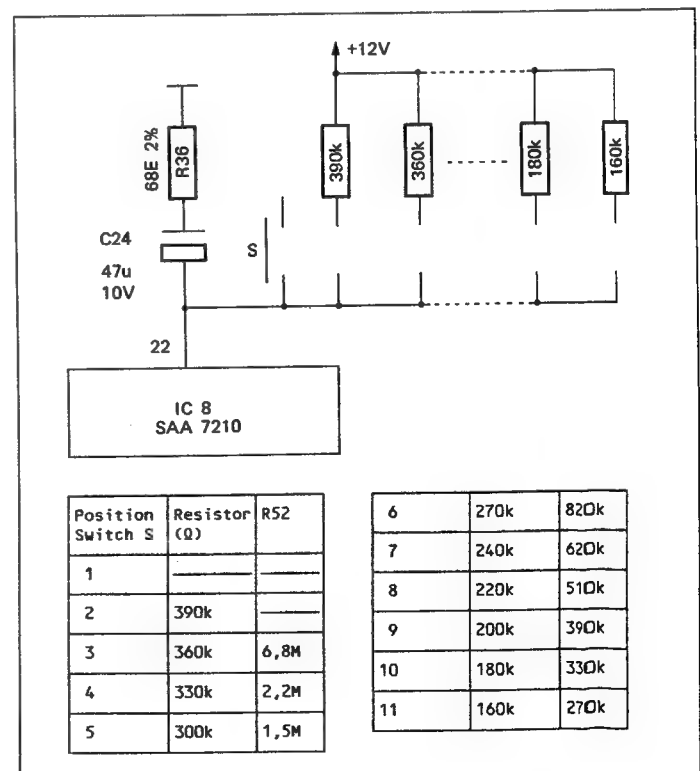


Fig. 4.11

4.2.3 MICROPROCESSOR PCB 1.769.402/404

-> Fig.4.12

■ Messbedingung: Abspielmodus mit Test-CD Nr.3, sofern nichts anderes vermerkt.

	Name	SIGNAL	PLAY	STOP	POWER OFF
1	IC 6: pin 1	RE	TTL 650Hz	+ 5.0 V	0.0 V
2	pin 6	RE-FIL	TTL 650Hz	0.0 V	+ 5.0 V
3	pin 9	TL	+ 5.0 V	+ 5.0 V	0.0 V
4	IC 7: pin 12	DODS	+ 5.0 V	+ 5.0 V	+ 5.0 V
5	pin 13	SI	0.0 V	+ 5.0 V	+ 5.0 V
6	IC 9: pin 9	TL-LAT	+ 5.0 V	0.0 V	+ 5.0 V
7	pin 10	TL-RES	+ 5.0 V	+ 5.0 V	+ 5.0 V
8	IC 10: pin 13	B0	+ 5.0 V	0.0 V	0.0 V
9	pin 14	B1	+ 5.0 V	+ 5.0 V	0.0 V
10	pin 15	B2	+ 5.0 V	+ 5.0 V	0.0 V
11	pin 18	B3	0.0 V	0.0 V	0.0 V

	Name	DRAWER MOVES OUT	DRAWER MOVES IN
12	DRAW IN	0.0 V	+ 5.0 V
13	DRAW OUT	+ 5.0 V	0.0 V
14	IC 14: pin 1	- 4.3 V	+ 4.3 V
15	pin 7	+ 0.9 V	- 0.9 V
16	E.Q1/Q2	- 4.2 V	+ 4.2 V

	Name	DRAWER BLOCKED	DRAWER UNBLOCKED
17	DRAWSENSE	0.0 V	+ 5.0 V

	Name	DRAWER POSITION:		
		IN	BETWEEN	OUT
18	DRAW F	0.0 V	0.0 V	+ 5.0 V
19	DRAW B	+ 5.0 V	0.0 V	0.0 V

	Name	Signal	NO KEY PRESSED	CORRESPONDING KEY PRESSED
20	IC 5: pin 2	P10	+ 5.0 V	TTL SIGNAL
21	pin 3	P11	+ 5.0 V	TTL SIGNAL
22	pin 6	P12	+ 5.0 V	TTL SIGNAL
23	pin 4	P13	+ 5.0 V	TTL SIGNAL
24	pin 5	P14	+ 5.0 V	TTL SIGNAL
25	IC 7: pin 15	P0	+ 5.0 V	TTL SIGNAL
26	pin 14	P1	+ 5.0 V	TTL SIGNAL
27	pin 16	P2	+ 5.0 V	TTL SIGNAL
28	pin 17	P3	+ 5.0 V	TTL SIGNAL
29	pin 18	P4	+ 5.0 V	TTL SIGNAL
30	pin 19	P5	+ 5.0 V	TTL SIGNAL

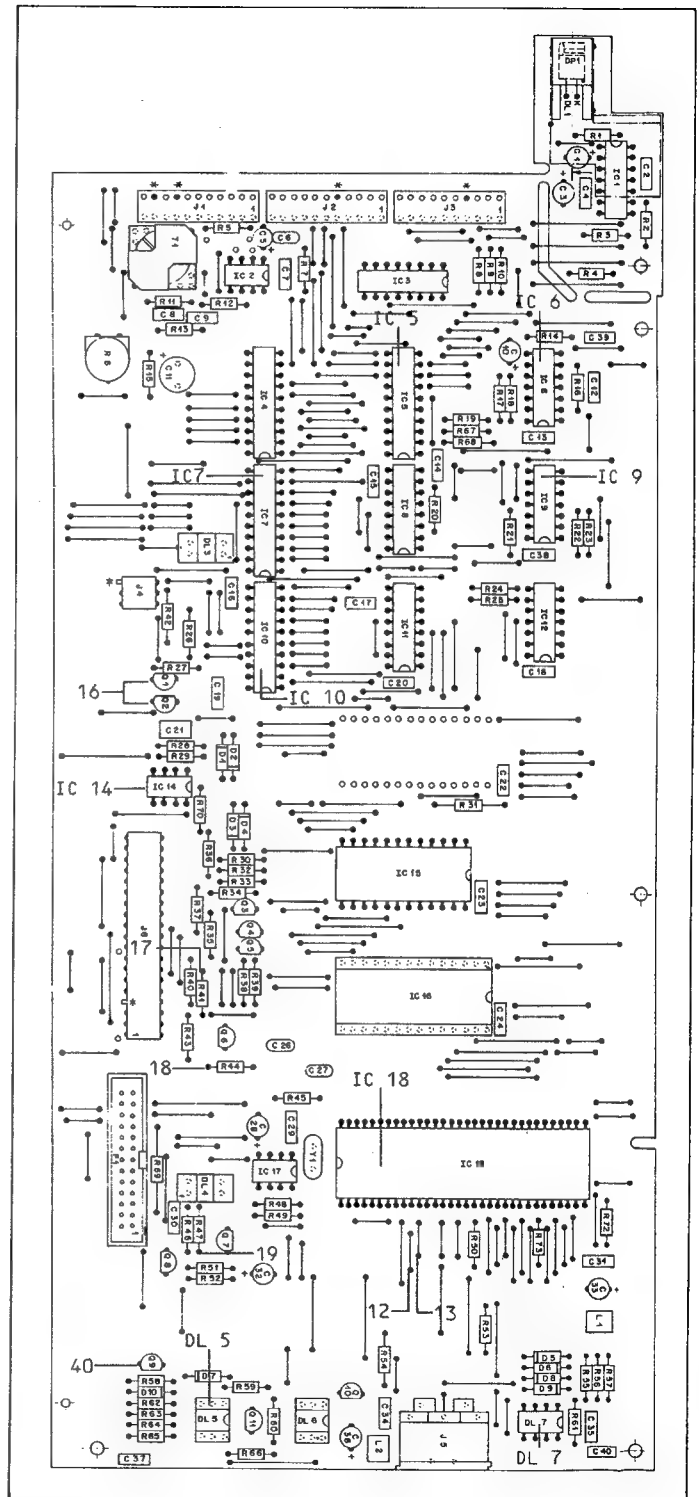


Fig. 4.12

	Name	SIGNAL	PLAY	SEARCH	CUEING </>
31	IC 10:	ATSB	+ 5.0 V	+ 5.0 V	0.0 V
32	pin 16	MUSB	+ 5.0 V	0.0 V	+ 5.0 V
33	pin 17	PULSE	0.0 V	+ 5.0 V	PULSES
34	IC 18:	MUTE	0.0 V @ AUDIO CD + 5.0 V @ CD ROM		
	pin 27				

	Name	Signal	WITHOUT IR SIGNAL	WITH IR SIGNAL
35	IC 10:	IR-REC	0.0 V	+ 5.0 V
	pin 12			

	Name	Signal	POWER ON	REMARKS
36	IC 18:	RES	+ 5.0 V	"LOAD": 0.0 V
37	pin 6	NMI	+ 5.0 V	
	pin 8			

	Name	SERIAL LINK CONNECTOR	
		NO CONNECTION	SHORTED PINS: 1<->2; 4<->5
38	DL 7:	+ 0.3 V	+ 0.1 V
	pin 7		
		NO CONNECTION	SHORTED PINS: 1<->2; 3<->5
39	DL 5:	+ 5.0 V	0.0 V
40	pin 5		
	C.Q9	0.0 V	+ 3.7 V

4.3 EINSTELLUNGEN

HINWEISE:

Der CD-Mechanismus ist ein optomechanisches Präzisions-Instrument und ist deshalb nur am Chassis anzufassen und keiner Staubeinwirkung auszusetzen.

Die Laser-Optik kann mit einem Luftpinsel gereinigt werden. Reinigungsmittel sind nicht zu verwenden, sie können beim Eindringen in den Fokussier-Mechanismus diesen zerstören.

Das CD-Laufwerk ist mit selbstschmierenden Lagern versehen und bedarf daher keiner Wartung.

Vorsicht:

Der Laserstrahl kann das menschliche Auge verletzen. Ein direkter Einblick in die Optik, das Verwenden eines Spiegels oder einer Lupe ist nicht empfehlenswert.

4.3.1 Kontrolle der Laser-Optik

→ Fig. 4.13 / Fig. 4.14

- Gerät ausschalten und Netzstecker ziehen.
- Laufwerk ausbauen (Abschnitt 2.4.1).
- Das ausgebaute Laufwerk (ohne Laufwerkkorb) unter eine Lichtquelle legen. Vor der Lichtquelle einen Faden oder Draht spannen, so dass dieser einen geraden, dünnen Schatten auf das Laufwerk wirft.
- Den kleinen Spiegel auf die Laserlinse und die Glas-CD (beides in Set Nr.:46242 enthalten) auf das Laufwerk legen.
- Den Laser-Abtastarm in Mittelstellung bringen und das Laufwerk so drehen, dass der Schatten der Lichtquelle im Zentrum des Abtastarms und parallel zu diesem verläuft.
- Beim Betrachten der beiden Schattenlinien auf der Glas-CD und auf dem Spiegel (Fig. 4.13) darf deren seitlicher Versatz nicht mehr als 2,5 mm betragen.
- Laufwerk so aufstellen, dass die Schattenlinie senkrecht zum Abtastarm, aber durchs Zentrum des Spiegels auf der Laser-Optik verläuft. (Fig. 4.14)
- Der seitliche Versatz der Schattenlinien darf auch hier nicht mehr als 2,5 mm betragen.

4.3.2 Korrektur der Laser-Optik

→ Fig. 4.15

- Kontrolle der Laser-Optik (Abschnitt 4.3.1).
- 2 Schrauben [A] lösen bis sich die Lagerplatte [B] verschieben lässt. (Fig. 4.15)
- Die Lage der Lagerplatte gemäß Fig. 4.15 korrigieren.
- Bei korrekter Lage die Schrauben [A] vorsichtig festdrehen.
- Einstellung der Laser-Optik erneut überprüfen (Abschnitt 4.3.1).
- Laufwerk wieder einbauen.

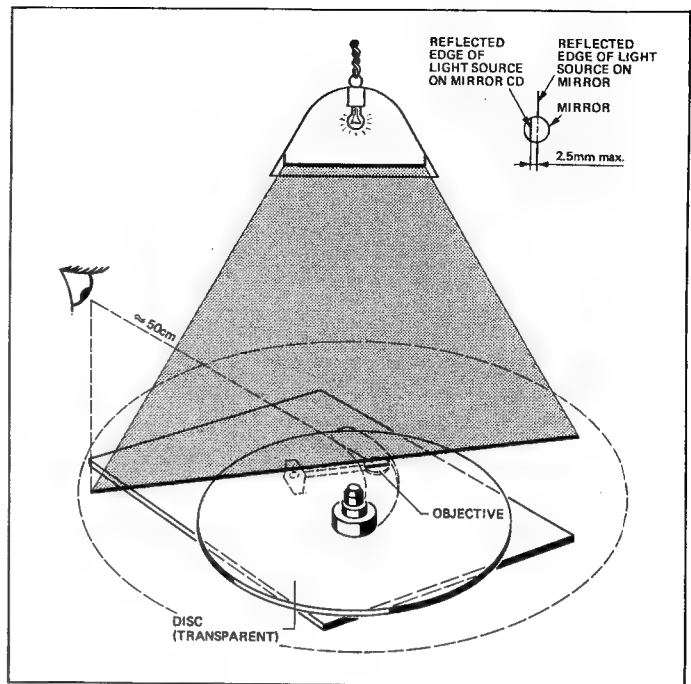


Fig. 4.13

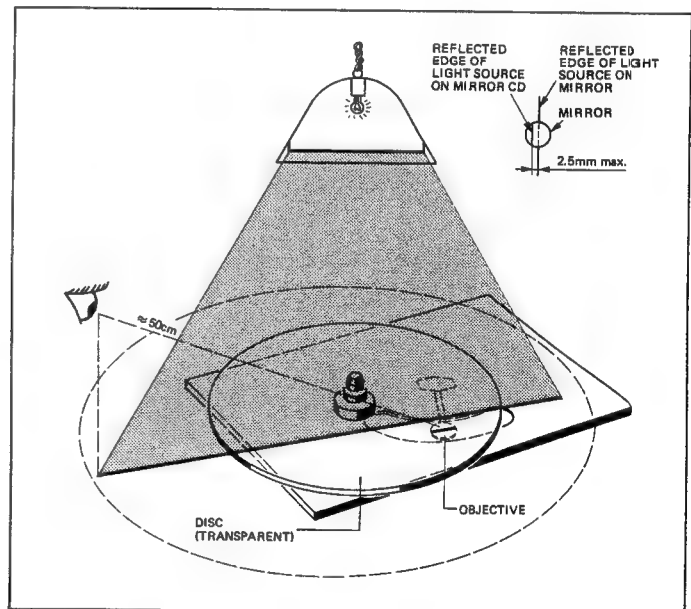


Fig. 4.14

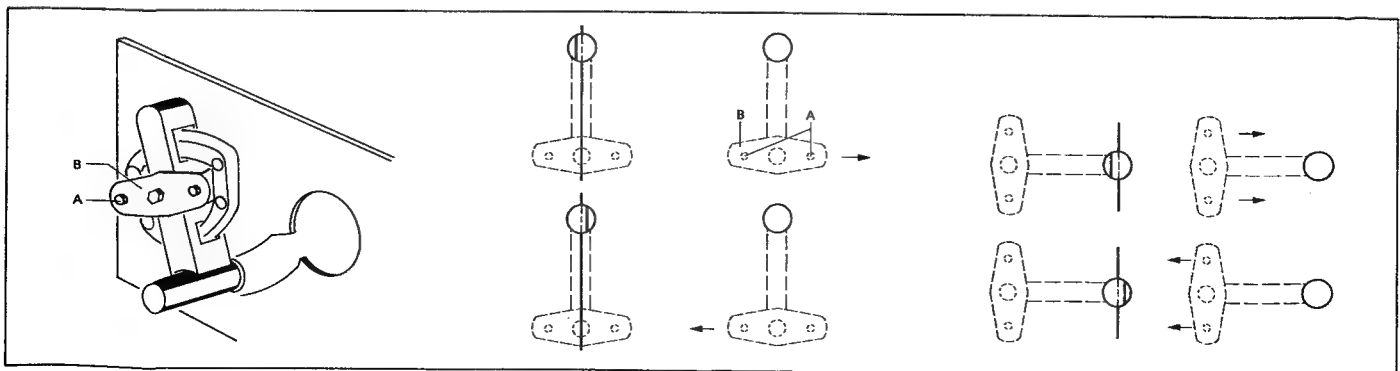


Fig. 4.15

4.3.3 Laserstrom einstellen

-> Fig. 4.16

- Das Laufwerk aus dem Gerät nehmen (Abschnitt 2.4.1).
- Den SERVO PCB abschrauben (Abschnitt 2.5.6).
- Den CD-Spieler auf den Kopf stellen und Laufwerk in Normalposition auf den Boden stellen.
- Test-CD Nr.3 (TRACK 1) abspielen.
- Mit Trimpotentiometer R 3106 auf dem SERVO PCB eine Spannung von 50 mV DC ± 5 mV über R 3102 (4k7) einstellen, NF-Voltmeter verwenden.

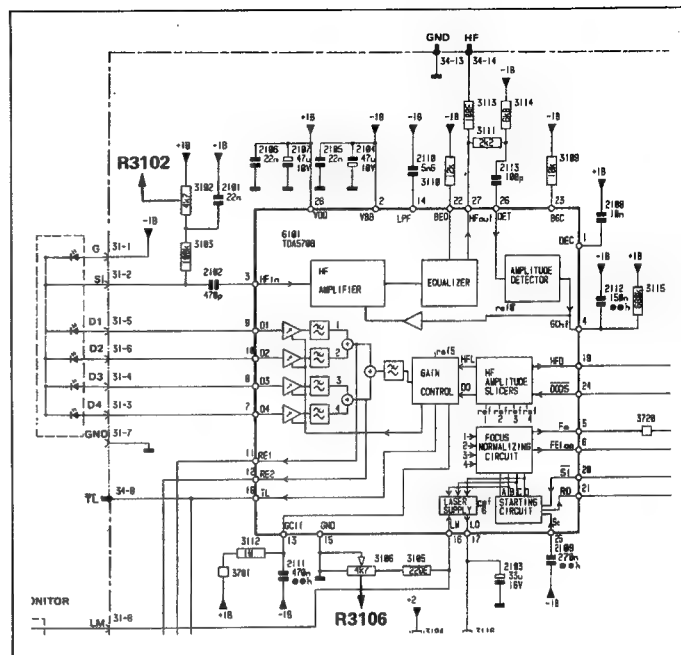


Fig. 4.16

4.3.4 Fokus-Offset Abgleich

-> Fig. 4.17

Das CD-Laufwerk muss in seiner üblichen Betriebslage sein. Zur Einstellung die Philips Test CD Nr.3 und ein Digital Voltmeter verwenden.

- Demontage wie in Abschnitt 4.3.3.
- Durch schrittweises Drehen des Trimpotentiometers R 3146 des SERVO PCB's in die Positionen 1,2,3, etc. den CD-Mechanismus starten.
- Bei fokussiertem Laser das Potentiometer R 3146 so einstellen, dass der Spannungsabfall in Bezug auf Masse über C 2136 +400 mV DC beträgt.

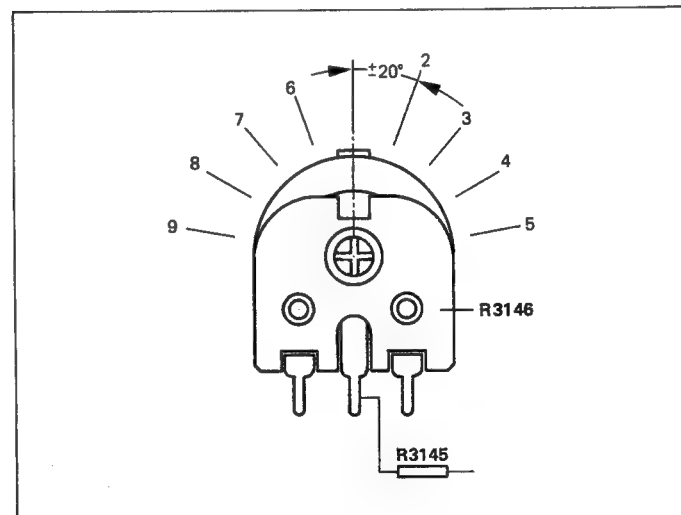


Fig. 4.17

4.3.5 Test für die Hall Motor Steuerung

-> Fig. 4.18 / Fig. 4.19

- Unterbrechen des Vc-Anschlusses durch Ablöten der Verbindung 02-4 am Motor PCB.
- Ein Trimpotentiometer von 22kΩ in Serie mit einem Widerstand von 3,3kΩ auf dem Motor PCB zwischen Anschlusspunkt 02-3 und der -6V Speisespannung anbringen.
- Den Trimpotentiometer-Abgriff via Schalter S mit Anschluss 02-4 (Vc) verbinden.
- Mit Hilfe eines Oszillographen zuerst parallel zu R 3094 und anschließend über R 3093 messen. Der Oszillograph darf nicht gleichzeitig über beide Widerstände angeschlossen werden, weil der Strom durch die +2 und -2 Anschlüsse gemessen wird.
- Das Trimpotentiometer auf das Maximum stellen (dessen Schleifkontakt befindet sich dann am 3,3kΩ Widerstand).
- Eine Disk einlegen.
- Den CD-Player in den SERVICE MODE schalten:
 - Am ausgeschalteten Gerät beide Tasten PROGRAM STEP +/- bzw. STEP +/- drücken und gleichzeitig durch Betätigen der POWER-Taste einschalten.
 - In der Anzeige ist nun der blinkende Schriftzug STEP und darunter die Ziffer 1 sichtbar (SERVICE STEP 1).
- Den Schalter S schliessen, Trimpotentiometer soweit zurückdrehen, bis 3 komplette Pulse pro 0,1 sec. sichtbar sind. Die Polarität des Oszillographen so wählen, dass die Pulse nach oben zeigen.
- DC-Voltmetermessung am Anschluss 02-4 (Vc):
 - Vc = -1,7 +/- 0,5 V
 - Ueber R 3094 gemessen, Wert 1 = max. 56,4 mV
 - Ueber R 3093 gemessen, Wert 2 = max. 58,8 mV
 - Differenz: Wert 1 - Wert 2 = max. 6,0 mV
- Beträgt die Differenz mehr als 6 mV und die Maximalwerte 1 sowie 2 werden nicht überschritten, so ist der Motor defekt.
- Für ein einwandfreies Funktionieren müssen die Werte denjenigen von Fig. 4.19 oben entsprechen.
- Der Spitzenwert ist nicht spezifiziert (Wert 1 und Wert 2).
 - Spitzenwert-Abweichung < 24 mV
 - Flanken-Abweichung < 36 mV
 - Fusswert (FOOT) nicht spezifiziert
- Hinweis: Die Flankendifferenz bezieht sich auf einen asymmetrischen Puls und der Fusswert entspricht dem DC-Offset.
- Beispiele fehlerhafter Signalformen siehe Fig. 4.19 unten.
- Mit dem Trimpotentiometer die Spannung am Messpunkt 02-4 (Vc) auf -0,9 V einstellen, der Motor muss weiterdrehen. Auch bei stark reduzierter Amplitude dürfen sich die Symmetrie und die Rundung des Signals nicht verändern.
- Durch Ausschalten des Gerätes oder Ziehen des Netzsteckers wird der SERVICE MODE verlassen. Der CD-Player ist nach dem nächsten Einschalten für den normalen Betrieb bereit.

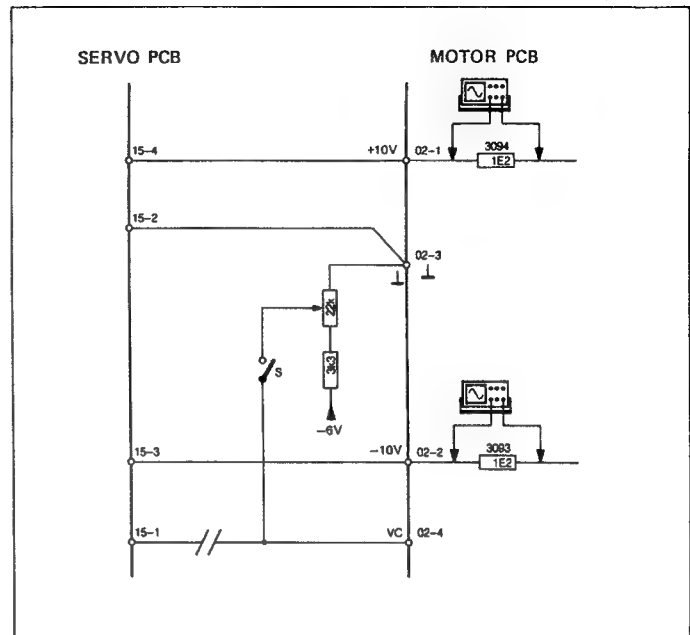


Fig. 4.18

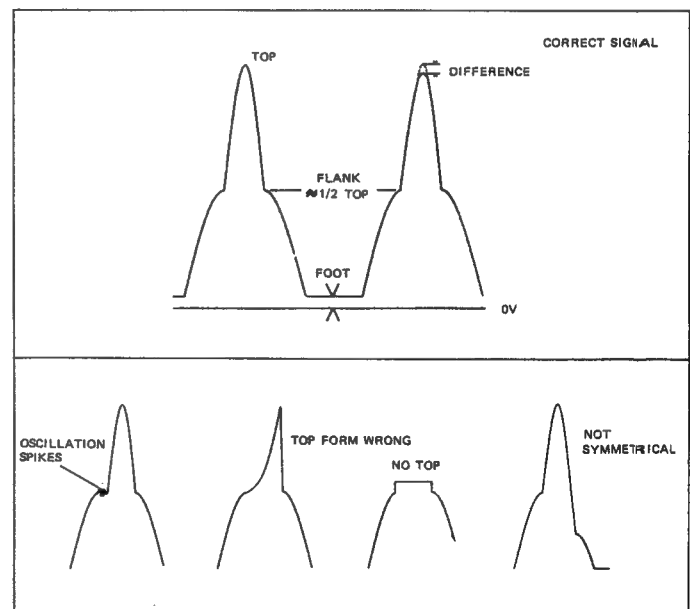


Fig. 4.19

4.4 MESSEN DER AUDIO-DATEN

- Klirrfaktor
- Ausgangspegel und Kanalgleichheit
- Frequenzgang
- Übersprechen
- Fremdspannungsabstand
- Geräuschspannungsabstand
- Phasenlinearität
- Akustische Beurteilung

4.4.1 Klirrfaktor

→ Fig. 4.20

- Messaufbau nach Fig. 4.20 mit Klirrfaktor-Messfilter am Ausgang VARIABLE OUTPUT [2].
- Mit der Taste VOLUME + [20] maximalen Ausgangspegel einstellen.
- Test-CD Nr.3 abspielen. Für die Messung des linken Kanals TRACK 4 und für die Messung des rechten Kanals TRACK 8.
Für alle Frequenzen des TRACK 4 oder TRACK 8 muss der Klirrfaktor kleiner als folgende Werte sein:
0.005% (B126)
0.004% (B226-S)
- Die gleichen Messungen sind auch an den Ausgängen FIXED OUTPUT [1] vorzunehmen.

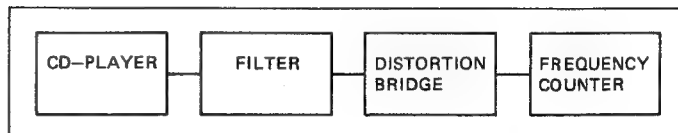


Fig. 4.20

4.4.2 Ausgangspegel und Kanalgleichheit

- Mit der Taste VOLUME + [20] maximalen Ausgangspegel einstellen.
- Test-CD Nr.3 TRACK 2/3 abspielen.
- Mit einem NF-Voltmeter die Pegel der Ausgänge FIXED [1] und VARIABLE [2] messen.
- Der gemessene Wert muss 2,5 V RMS \pm 1 dB betragen.
Kanalgleichheit: besser als 0,2 dB.

4.4.3 Frequenzgang

- Ausgangspegel kontrollieren (Abschnitt 4.4.2).
- Test-CD Nr.3 TRACK 2 (linker Kanal / 1 kHz) abspielen und die Pegelreferenz auf 0 dB einstellen.
- Test-CD Nr.3 TRACK 4 für den linken Kanal und TRACK 8 für den rechten Kanal abspielen.
- Bei maximalem Ausgangspegel muss der Frequenzgang der Ausgänge FIXED [1] und VARIABLE [2] bei allen Test-Frequenzen (41 Hz, 101 Hz, 997 Hz, 3163 Hz, 6373 Hz, 10007 Hz, 16001 Hz, 19001 Hz, 19997 Hz) in der Toleranz von \pm 0,1 dB liegen.

4.4.4 Übersprechen

- Mit der Taste VOLUME + [20] maximalen Ausgangspegel einstellen.
- Test-CD Nr.3 TRACK 2 (linker Kanal / 1 kHz) abspielen und die Pegelreferenz auf 0 dB einstellen.
- Über ein 30 kHz Tiefpassfilter sind beide Ausgänge zu messen:
TRACK 4 für die Messung Übersprechen L zu R.
TRACK 8 für die Messung Übersprechen R zu L.
- Die Übersprechdämpfung muss mindestens 90 dB betragen.

4.4.5 Fremdspannungsabstand

- Mit der Taste VOLUME + [20] maximalen Ausgangspegel einstellen.
- Test-CD Nr.3 TRACK 2 (linker Kanal / 1 kHz) abspielen und die Pegelreferenz auf 0 dB einstellen.
- Test-CD Nr.3 TRACK 18 (digitale Stille) abspielen.
- Über ein 30 kHz Tiefpassfilter sind die Ausgänge FIXED [1] und VARIABLE [2] zu messen.
- Der erreichte Wert muss beim B126 über 100 dB bzw. beim B226-S über 102 dB liegen.

4.4.6 Geräuschspannungsabstand

- Mit der Taste VOLUME + [20] maximalen Ausgangspegel einstellen.
- Über ein 30 kHz-Tiefpassfilter und ein A-Bewertungsfilter sind die Ausgänge FIXED [1] und VARIABLE [2] zu messen.
- Test-CD Nr.3 TRACK 2 (linker Kanal / 1 kHz) abspielen und die Pegelreferenz auf 0 dB einstellen.
- Test-CD Nr.3 TRACK 18 (digitale Stille) abspielen.
- Die erreichten Werte müssen über den folgenden liegen:
106 dB (B126)
108 dB (B226-S)

4.4.7 Phasenlinearität

-> Fig. 4.21

- Mit der Taste VOLUME + [20] maximalen Ausgangspegel einstellen.
- Test-CD Nr.3 TRACK 20 abspielen.
- Oszilloskop an einem Ausgang anschliessen und die Rechtecksignale bei 100 Hz, 400 Hz, 1002 Hz und 5512 Hz optisch beurteilen. Die Kurvenform muss symmetrisch sein. (Fig.4.21)

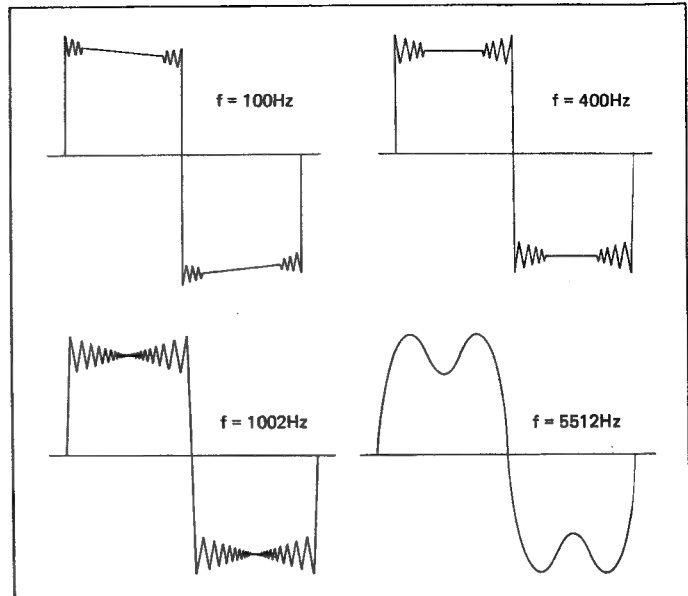


Fig. 4.21

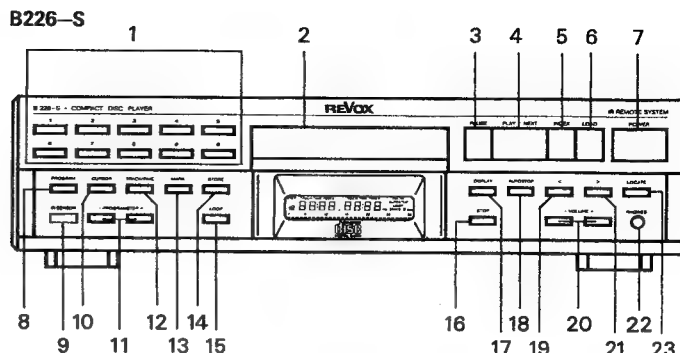
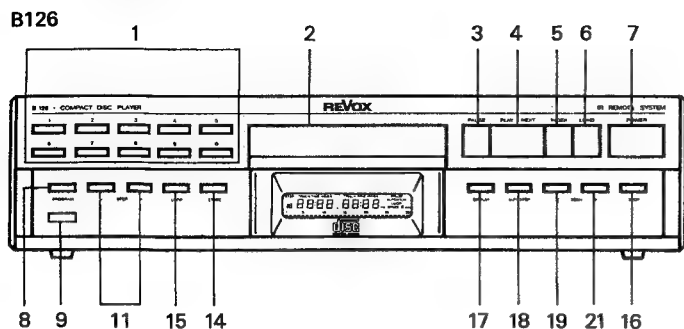
4.4.8 Akustische Beurteilung

- Test-CD Nr.5A abspielen und auf Abspielfehler (Unterbrüche) achten.
- Die Test-CD enthält die folgenden simulierten Fehler:
Informationsunterbrüche von 400 ... 900 μ m auf TRACK 5 - TRACK 9.
Schwarze Punkte (Black Dots) von 300 ... 800 μ m auf TRACK 11 - TRACK 17.
Simulierter Fingerabdruck auf TRACK 18 und 19.
- Diese Beurteilung ist natürlich nur mit einer einwandfreien und sorgfältig behandelten Test-CD möglich. Zusätzliche Fehler können sich mit den simulierten Fehlern summieren und so zum Unterbrechen des Abspielvorganges führen.

ENGLISH

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1. GENERAL



1.1 OPERATING CONTROLS

= The CD player can be switched on directly with these keys. PLAY/NEXT [4] switches the unit to PLAY mode, the inserted disc is played starting with the first track. With STOP [16] the CD player is only switched on; the PAUSE and LOCATE keys switch the CD player to PAUSE at the start of the first track. PLAY/NEXT [4] initiates play mode; if the CD player has been started with one of the numeric keys [1] and PLAY NEXT [4], playback starts with the preselected track.

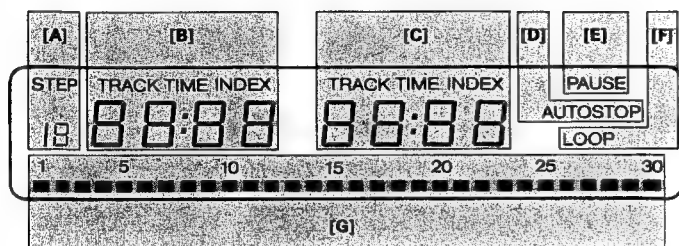
Control element Function

[1]# Keys 0 - 9	Numeric input keys. For direct addressing of a selection (TRACK or INDEX) in conjunction with PLAY/NEXT [4] or INDEX [5].
[2] Disc drawer	This drawer carries the compact disc to the laser-based play mechanism. It can be opened and closed by pressing the LOAD button [6].
[3]# PAUSE	With this key the playback can be interrupted at any time. If PLAY/NEXT [4] is subsequently pressed, playback resumes from the interrupted location.
[4]# PLAY/NEXT	Each time this key is pressed the next selection will be played. If it is pressed after a number has been entered with the numeric keys [1], the corresponding selection will be played.
[5] INDEX	Each time this key is pressed, the selection following the next index will be played. If it is pressed after a number has been entered with the numeric keys [1], the selected index will be played. If no indices are recorded on the CD, the next TRACK is selected when this key is pressed.
[6]# LOAD	Actuation of this key moves the disc drawer [2] in or out.
[7]# POWER	Switches the unit on or off. Certain components of the CD player always remain under voltage (STANDBY).
[8] PROGRAM	Switches the input mode on or off.
[9] IR SENSOR	Infrared receiver window.

[10] CURSOR	With the CURSOR key any position of the display can be accessed and subsequently edited. Editable parts of the B226-S display blink.
[11] PROGRAM STEP +/-	These keys permit paging up (+) or down (-) within the program.
[12] TRACK/TIME	Switches the display from TRACK indication to TIME indication in programming mode.
[13] MARK	This key sets a start and/or stop mark (DISC TIME only) while listening in programming mode.
[14] STORE	Memory load button, must be pressed upon completion of each program step input.
[15] LOOP	Executes repeated playback of a CD or program.
[16]# STOP	Interrupts PLAY mode and causes the laser pickup to return to the start position (also interrupts a running program).
[17] DISPLAY	Changes over the TIME indication in field [C]. Four time display modes are possible: a) DISC TIME (time elapsed since start of CD). b) TRACK TIME (time since start of TRACK or selection). c) TRACK REMAINING TIME (time remaining to the end of the TRACK or selection). d) DISC REMAINING TIME (time remaining to the end of the CD).
[18] AUTOSTOP	This key interrupts the play mode upon completion of the selection or program step currently being played (PAUSE). Playback can be resumed by pressing PLAY/NEXT [4].

- [19] < Shifts the playback point towards the start of a selection for as long as this key is pressed.
- [20] VOLUME +/- Varies the level of the headphones (PHONES) output and of the VARIABLE OUTPUT.
- [21] > Shifts the playback point towards the end of a selection for as long as this key is pressed.
- [22] PHONES Jack socket for headphones 200 ... 600 Ω .
- [23]# LOCATE Locator function. Interrupts play mode and the CD player is switched to PAUSE at the position of the last PLAY/NEXT command.

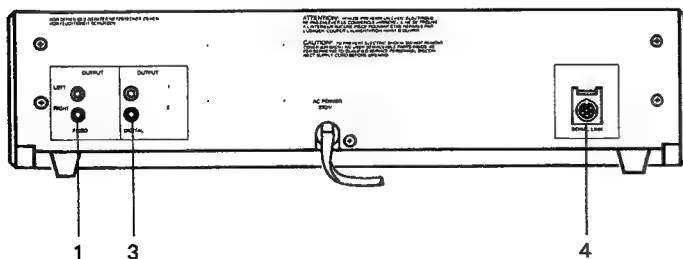
DISPLAY PANEL



- [A] STEP Number of the current program step; the word STEP flashes in programming mode; in normal play mode this display field is not visible.
- [B] TRACK TIME INDEX This field indicates in the first and second position the number of the selection being played, and in the third and fourth position the corresponding INDEX (if existing). In programming mode a start time (minutes and seconds) can be displayed here (B226-S).
- [C] TRACK TIME INDEX This field indicates the current selection (TRACK) time (since the start of the selection) or the DISC time (since the start of the CD). In programming mode an end time, an end Selection (TRACK) or an end index can be displayed here (B226-S).
- [D] AUTOSTOP Visible when AUTOSTOP mode is active.
- [E] PAUSE Visible when PAUSE function is active.
- [F] LOOP Visible when LOOP function is active.
- [G] List of content; missing dots on the left = selections already played, total number of dots = total number of TRACKS existing on the mounted CD.
- Volume indicator; While the headphones resp. the variable output is being adjusted, the level is momentarily indicated here (resolution approx. 2 dB/segment).

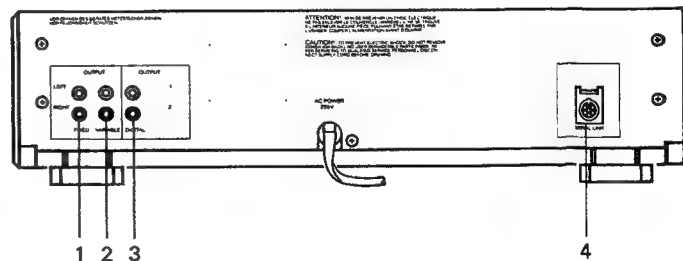
1.2 CONNECTOR PANEL

B126



- | Terminal | Function |
|---------------------|---|
| [1] FIXED OUTPUT | Standard-level output:
U _{max} : 2.5 V RMS
R _i : <500 Ω , short-circuit proof. |
| [2] VARIABLE OUTPUT | Output with variable level:
U: 0.00 ... 2.5 V RMS
R _i : <500 Ω , short-circuit proof. |

B226-S



- | | |
|--------------------|---|
| [3] DIGITAL OUTPUT | 2 identical digital outputs: complete serial information on the CD; Left-hand channel, right-hand channel, and subcodes.
U _{max} : 0.50 V _{pp} ,
R _i : 75 Ω . |
| [4] SERIAL LINK | Serial port for interconnection with the REVOX B200 Controller or an external IR Receiver B206. The internal IR receiver can also be switched off via this socket (interconnect pin1 with pin2 and pin4 with pin5.) |

2. DISASSEMBLY INSTRUCTIONS

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2.1 GENERAL INFORMATION

CAUTION: Before removing any housing parts and electronic assemblies, make sure that the unit is disconnected from the AC power source!

Important information:

- The MOS component handling recommendations found at the beginning of this manual should be followed whenever electronic components are removed or installed.
- To prevent damage to detached cables and connectors during removal/installation work, stow them away in the corresponding recesses of the housing parts and sub-assemblies.

2.1.1 Required tools

1 Phillips screwdriver	size 0
1 Phillips screwdriver	size 1
1 Phillips screwdriver	size 2
1 Screwdriver	size 2
1 Screwdriver	size 3
1 Flat-nose pliers	
1 Tweezers	
1 Hexagon-socket-screw key "Inbus"	size 2
1 Hexagon-socket-screw key "Inbus"	size 3
1 Hexagon-socket-screw key "Inbus"	size 4
1 Hexagon-socket-screw key "Torx"	size T 8
1 Hexagon-socket-screw key "Torx"	size T10
1 Open-end wrench	size 11
1 "ESE" workbench kit	Order No.: 46200

Recommendation: Line the workbench with a cotton cloth to prevent scratches on the housing surface.

2.1.2 Reassembly

Reassemble the unit analogously in reverse order of the subsequently described disassembly instructions and follow the specific installation instructions.

2.2 HOUSING

2.2.1 Top cover

-> Fig. 2.1

- Unfasten the five screws [1] on the rear of the unit while gently pressing down the cover. (The cover has been lightly pretensioned).

Installation instruction:

First slide the cover into the groove on the front trim strip and then press down the back and tighten the screws.

2.2.2 Side panels

-> Fig. 2.2

- Unfasten 2 screws [2] each.

B126:

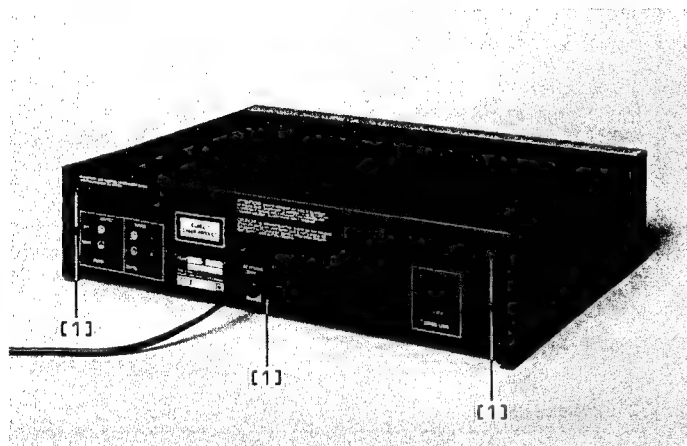


Fig. 2.1

B226-S:

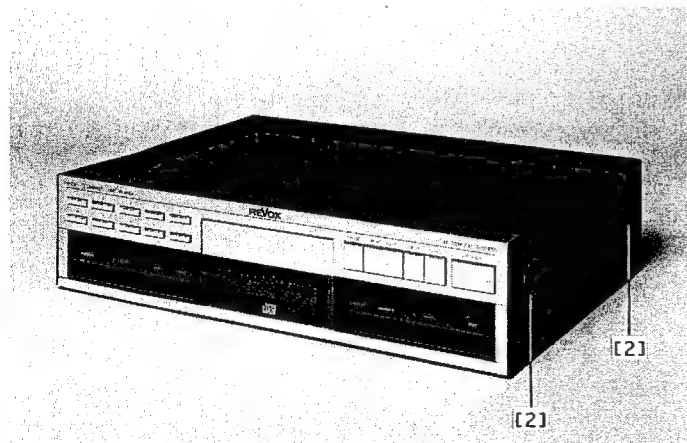
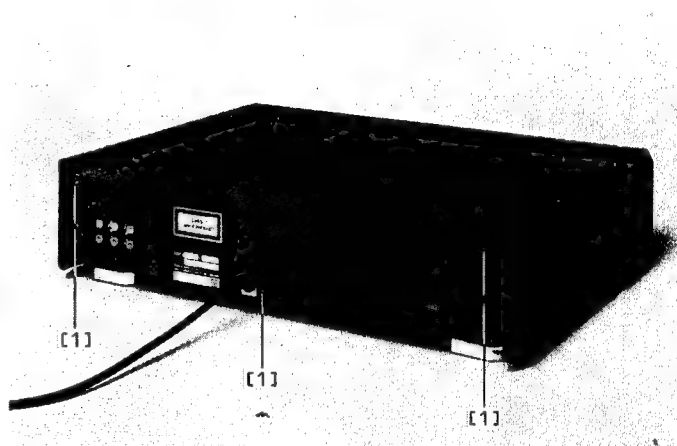
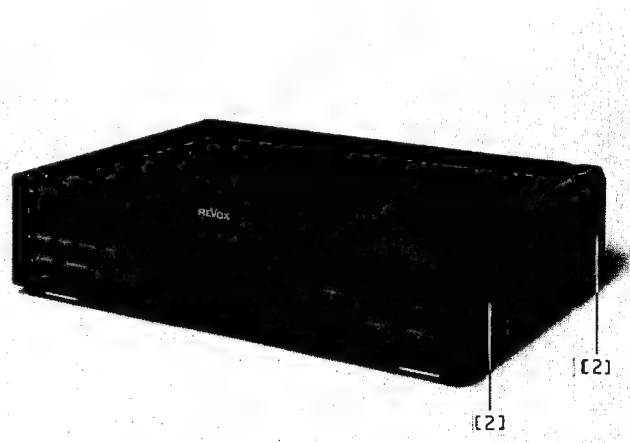


Fig. 2.2



2.3 PUSH BUTTON PANEL

→ Fig. 2.3 / Fig. 2.4

- Remove top cover (Section 2.2.1).
- Remove side panels (Section 2.2.2).
- From the bottom of the unit:
Unfasten 4 screws [3].
- From the top of the unit:
Unfasten 2 screws [4] with serrated lock washer and ground contact spring.
- Unfasten 2 screws [5].
- Lift the push button panel off the housing towards the front.
- Separate the following cable connections:
 - Cable [6] KEYBOARD LEFT → MICROPROCESSOR PCB
 - Cable [7] KEYBOARD RIGHT → MICROPROCESSOR PCB
 - Cable [8] LC DISPLAY → MICROPROCESSOR PCB
 - Cable [9] Headphones socket → DECODER PCB (B226-S)

2.3.1 LC display

→ Fig. 2.4

- Remove the push button panel (Section 2.3).
- Release one snap fastener [10] on each side by bending it out of the locked position with adequate force, then lift the LC display out of the push button panel.

2.3.2 Keyboard PCB • Switching mats • Keys

→ Fig. 2.4 / Fig. 2.5

- Remove the push button panel (Section 2.3).
- Unfasten 2 screws [11] each on the keyboard PCBs.
- Bend the snap fasteners out of their locked position one at a time, starting on one side while carefully lifting the keyboard PCB [12].

Caution:

- Avoid touching the gold-plated contacts.
- Do not turn over the push button panel: the buttons could drop out.

On the disassembled PCB [12] the switching mats [13] and push buttons [14] can be removed towards the top. The keys [15] of the top row with aluminum caps can be pressed out of their mounting by pressing them lightly towards the front.

Installation instruction:

- Prior to reassembly use a piece of lint-free cloth to wipe off any dust on subassemblies such as the keyboard and switching mats, display and display window.
- Before inserting the keyboard PCBs align the switching mats exactly with the centering pins and between the snap fasteners.
- Make sure that all snap fasteners above the circuit board are locked.

2.3.3 Headphones socket (B226-S)

- Remove the push button panel (Section 2.3).
- Remove the bronze retaining spring.
- Press the snap fasteners out of their locked position and pull the socket out of the holder.

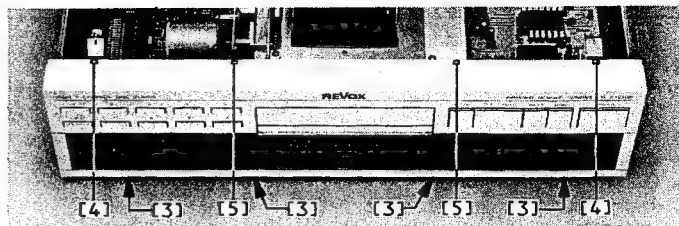


Fig. 2.3

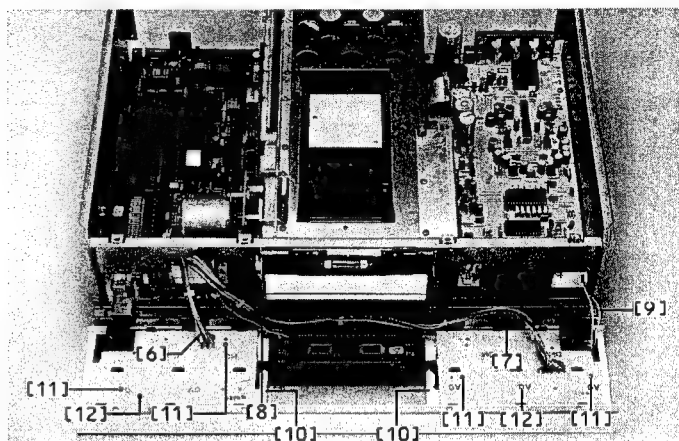


Fig. 2.4

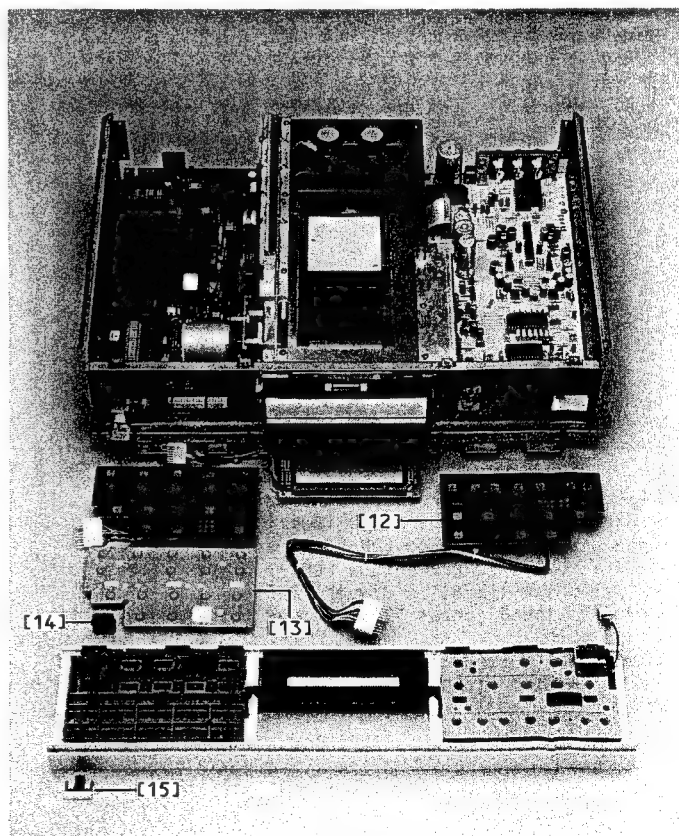


Fig. 2.5

2.4 PLAY MECHANISM

2.4.1 Exchange play mechanism

→ Fig. 2.6

- Remove the top cover (Section 2.2.1).
- Open the disk drawer.
- Expose the cable harness [17] (Fig. 2.6).
- Turn the unit upside down.
- Unfasten 4 screws [18] and carefully lift out the play mechanism of the case. The play mechanism can be set down in its normal operating position without becoming damaged.
- Separate the cable connections [17].
- Unfasten the 4 screws [19] of the 2 play mechanism supports. Exchange the play mechanism.

Reassembly instructions:

- If the CD scrapes against the drawer housing, the play mechanism should be correspondingly adjusted.

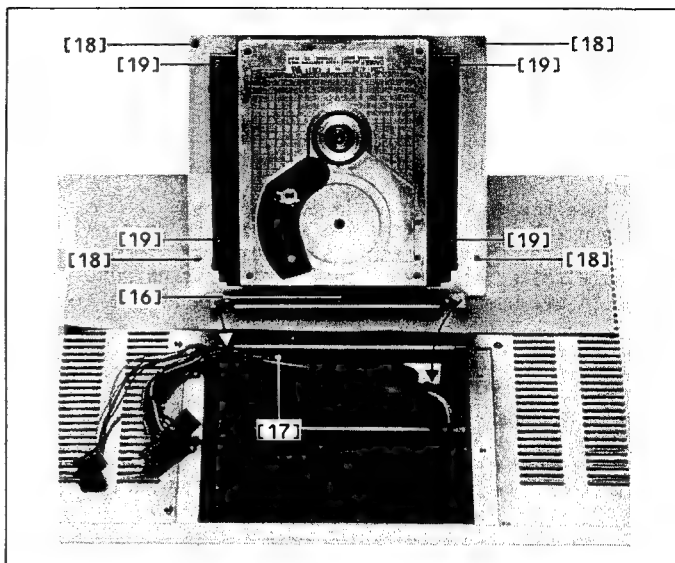


Fig. 2.6

2.4.2 CD drawer

→ Fig. 2.7

- Do not remove the play mechanism nor its case! Always leave the play mechanism case connected to the removed drawer housing. (Mechanical stability; the drawer mechanism has been factory-aligned to close tolerances.)
- Remove the MICROPROCESSOR PCB (Section 2.5.2).
- Remove the DECODER PCB (Section 2.5.3).
- Unfasten the 6 screws [20]. The complete CD drawer with play mechanism can now be lifted out from the back of the unit.

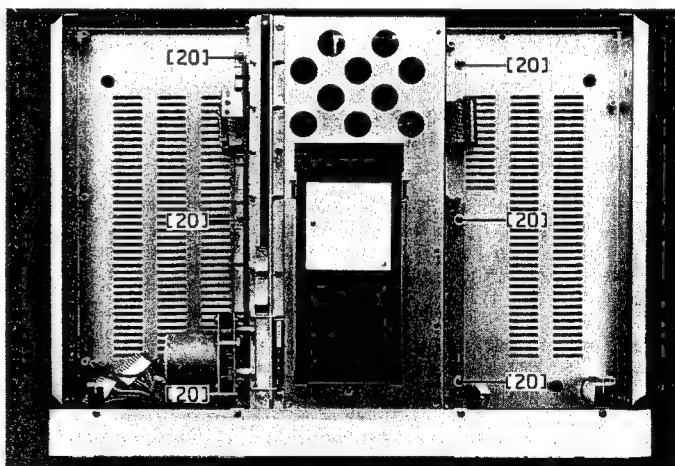


Fig. 2.7

2.4.3 Drawer motor

→ Fig. 2.8

- Remove the top cover (Section 2.2.1).
- Remove left-hand side panel (Section 2.2.2).
- Separate the following cable connection:
 - Cable [21] MICROPROCESSOR PCB → drawer motor.
- Unfasten the vibration damper [22].
- Unfasten the 3 screws [23]. Remove the drawer motor.

Installation instruction:

- Apply a drop of Loctite to the thread of the vibration damper.

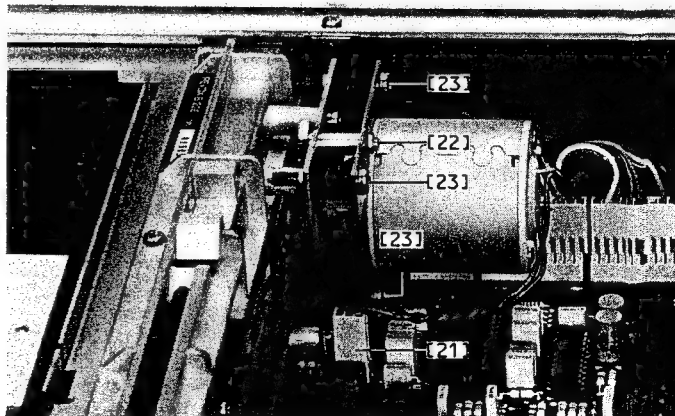


Fig. 2.8

2.5 ELECTRICAL ASSEMBLIES

2.5.1 Transformer PCB 1.769.450/451/452

-> Fig. 2.9 / Fig. 2.10

- Remove the top cover (Section 2.2.1)
- Separate the connecting cable [25] Transformer PCB -> DECODER PCB.
- Unfasten the strain relief clamp of the power cord [27].
- Unfasten the 4 screws [28]; the transformer PCB can now be pulled out of the unit toward the back.

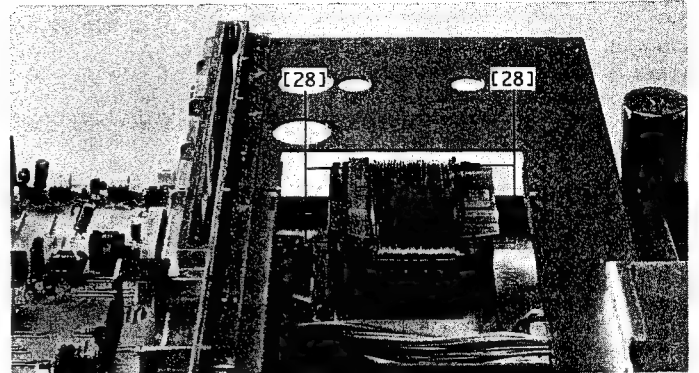


Fig. 2.9

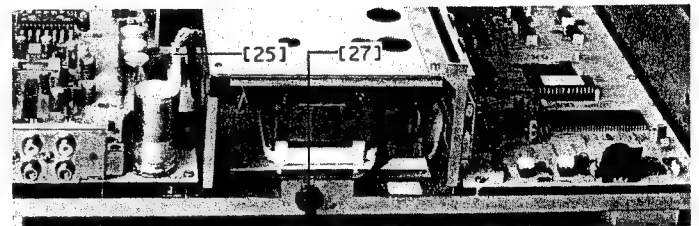


Fig. 2.10

2.5.2 MICROPROCESSOR PCB 1.769.402/404

-> Fig. 2.11

- Remove top cover (Section 2.2.1).
- Separate the following cable connections:
 - Cable [29] MICROPROCESSOR PCB -> DECODER PCB
 - Cable [30] MICROPROCESSOR PCB -> KEYBOARD LEFT
 - Cable [31] MICROPROCESSOR PCB -> KEYBOARD RIGHT
 - Cable [32] MICROPROCESSOR PCB -> LC DISPLAY
 - Cable [33] MICROPROCESSOR PCB -> Drawer motor
 - Cable [34] MICROPROCESSOR PCB -> Play mechanism (see Section 2.4.1).
- Unfasten 1 screw [35] and remove the driving lug.
- Unfasten the 4 screws [36] and pull the MICROPROCESSOR PCB backward by approximately 10 mm.
- Pull the cable connection [34] MICROPROCESSOR PCB -> Play mechanism through the opening in the drawer housing and lay it flat across the circuit board.
- Carefully pull the MICROPROCESSOR PCB out of the unit towards the back until the notch [37] is aligned with the rear panel of the housing.
- The circuit board can now be set upright and removed from the unit.

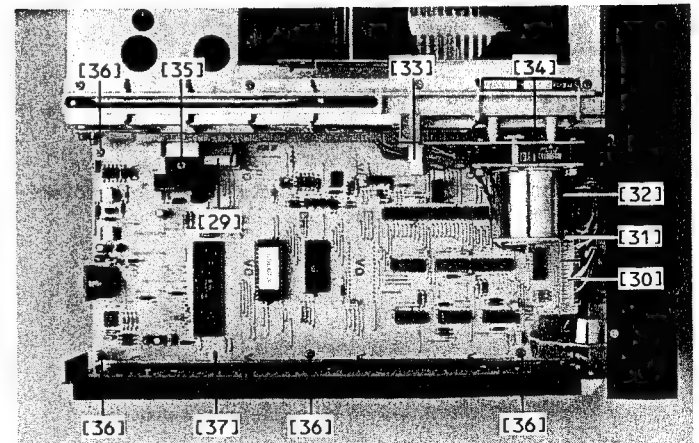


Fig. 2.11

2.5.3 DECODER PCB 1.769.421/422

-> Fig. 2.9 / Fig. 2.12

- Remove top cover (Section 2.2.1).
- Separate the following cable connections:
 - Cable connect. [38] DECODER PCB -> MICROPROCESSOR PCB
 - Connecting cable [25] Transformer -> DECODER PCB
 - Cable connection [39] DECODER PCB -> headphones socket
 - Cable connection [40] DECODER PCB -> ILLUMINATION PCB
- Unfasten 8 screws [41] and pull the DECODER PCB out towards the top.

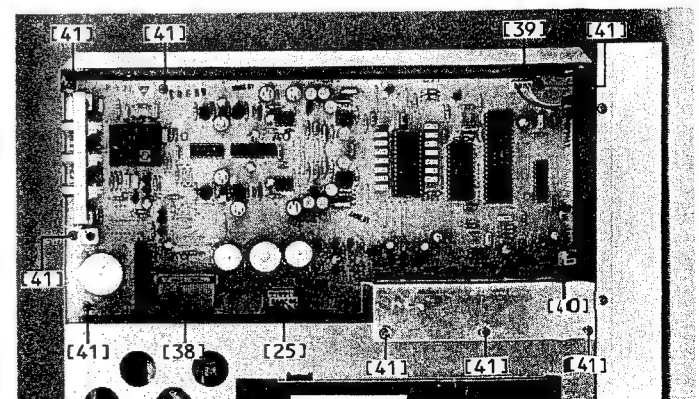


Fig. 2.12

2.5.4 LC DISPLAY PCB 1.769.255/455

→ Fig. 2.13

- Remove top cover (Section 2.2.1).
- Remove side panel (Section 2.2.2).
- Remove push button panel (Section 2.3)
- Remove the three screws [42], lift the circuit board at the top and pull it out of the guide.

Installation instruction:

- Wipe off the LC DISPLAY with a piece of lint-free and dry cloth. Reinstall once it is dust free.

2.5.5 ILLUMINATION PCB 1.769.565 (B126)

→ Fig. 2.12 / Fig. 2.13

- Remove top cover (Section 2.2.1).
- Remove side panels (Section 2.2.2).
- Remove push button unit (Section 2.3).
- Separate the cable connection [40] ILLUMINATION PCB → DECODER PCB.
- Unfasten the two screws [43].

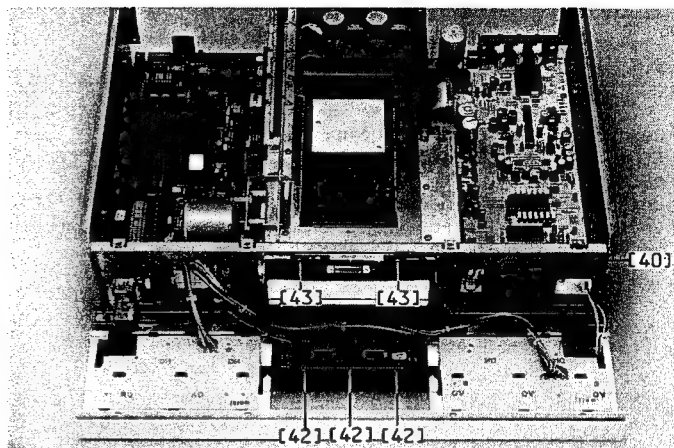


Fig. 2.13

2.5.6 SERVO PCB

→ Fig. 2.14 / Fig. 2.15

- Proceed according to Section 2.4.1
- Turn the player mechanism upside down, but never on the shaft of the disc motor or the laser optical system!
- With one hand secure the play mechanism, and unfasten the 4 screws [44] with your other hand. (For required tools → Section 2.1.1).
- Unfasten the two cable connections [45] and [46].

2.5.7 Primary fuse

- Remove top cover (Section 2.2.1).
 - The primary fuse is accessible from the top
- Fuse ratings:
- 110 VAC = T 400 mA/250 V (SLOW)
 - 220/240 VAC = T 200 mA/250 V (SLOW)

Installation instruction:

- It is important to reinstall the plastic shock protection after replacement of the fuse.

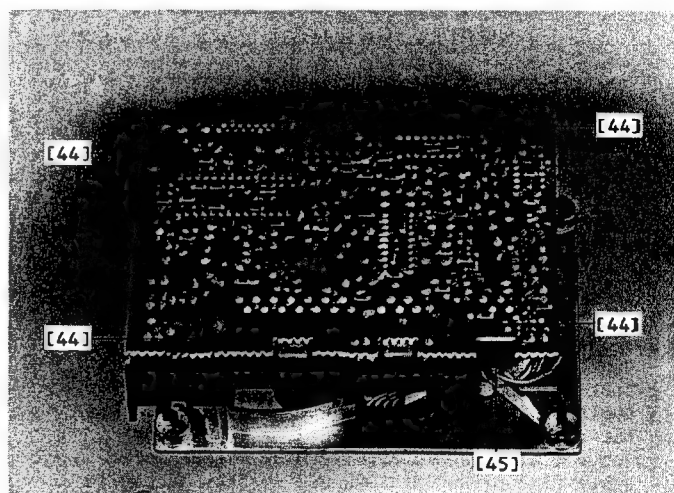


Fig. 2.14

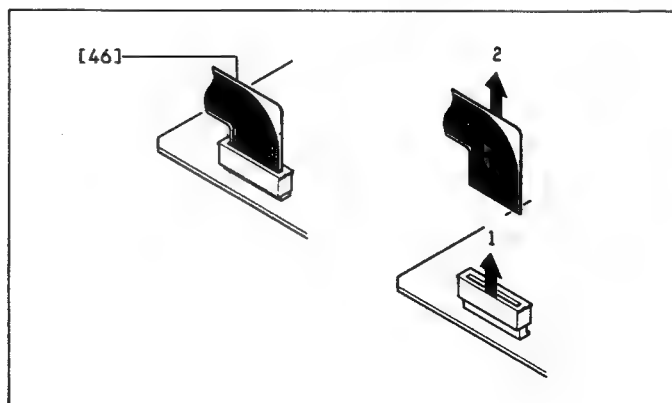


Fig. 2.15

3. FUNCTIONAL DESCRIPTION

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3.3.5 Automatic gain control (AGC)	E 3/6
3.3.6 Disc motor control	E 3/6

3.1 DECODER PCB 1.769.421/422

The following circuits are implemented on the DECODER PCB:

- Regulation of the supply voltages.
- Digital signal processing.
- Digital filtering.
- Digital/analog conversion.
- Level adjustment and headphones volume control.

3.1.1 Regulation of the supply voltages

→ Fig. 3.1

The supply voltages (+5 V, -5 V, +5 VSTBY, -10 VSTBY, +12 V, -15 V) are controlled by voltage regulators (IC1 to IC5). The +10 V and -10 V supply for the disc motor are tapped before the ± 5 V regulators.

The +5 VSTBY and -10 VSTBY are also available when the unit is switched off. They supply the microprocessor system and the IR receiver in standby operation. All other supply voltages are switched on or off by the microprocessor with the PS0N signal. For switching on, the microprocessor sets the PS0N signal to +5 V which means that the transistors Q4, Q3, and Q2 become conductive; the series pass transistors Q1, Q5, Q6, and Q7 also become conductive.

The diodes D6, D8, D14, and D16 prevent a polarity change in the supply voltage when the unit is switched off.

The SENSE signal produced with D1, D2, R22 and C1 monitors the secondary voltage of the transformer. Should this signal drop below 4.3 V (power failure), transistors Q11 and Q13 become conductive, transistors Q14 and Q15 block, relay K1 drops out and short circuits the audio outputs to ground (MUTE).

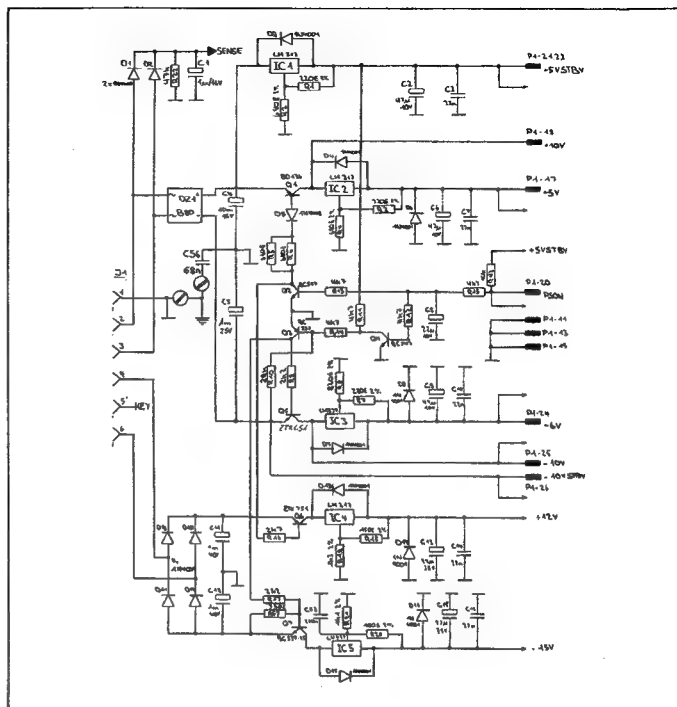


Fig. 3.1

3.1.2 Digital signal processing

→ Fig. 3.2

The RF signal filtered by a band-pass (R45, C34, C35) is split by IC 8 into audio data and subcode data. An integrated PLL (R36, R49, R53, R54, C24, C25, Q16) regenerates the clock for the audio data.

In addition IC8 is responsible for error detection and error correction; the RAM (IC9) serves as a buffer.

The subcode data (QDA, QRA, QCL) and the word select (SWAB/SSM) are taken to the microprocessor. The DEEM signal recognizes a disc with preemphasis and correspondingly switches the treble de-emphasis of the analog amplifiers.

3.1.3 Digital filtering

→ Fig. 3.2

In addition to the main time base (Y1, 11.2896 MHz), IC10 contains circuits for linear interpolation of up to 8 uncorrectable scanning values, the level attenuation, and the digital filtering.

The serial output signal I^S (DBAD, CLBD, WSBD) and the digital output signal (DOBM) are generated from the data of IC8 (SDAB, SCAB, EFAB, DAAB, CLAB, WSAB, and XSYS).

Due to the 16-bit resolution with 4-times oversampling and subsequent digital filtering parasitic frequencies above 20 kHz are effectively suppressed.

With the ATSB signal (active "L") the microprocessor attenuates the output level by 12 dB. The output is soft muted with the MUSB signal (active "L").

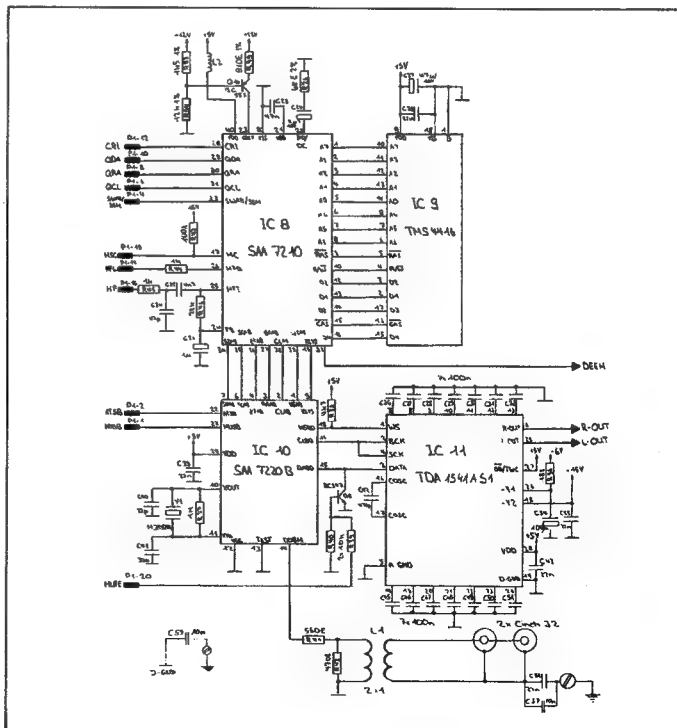


Fig. 3.2

3.1.4 Digital/analog conversion

→ Fig. 3.2

IC11 decodes the serial I²S data flow (DATA), orders the 16 bit words by channel, and simultaneously converts the data of the left-hand and right-hand channel to analog values (no time division multiplexing).

The analog outputs (R-OUT, L-OUT) are connected via a phase-linear Bessel low-pass filter with switchable characteristic (DEEM signal, for CDs with/without preemphasis) to the line driver.

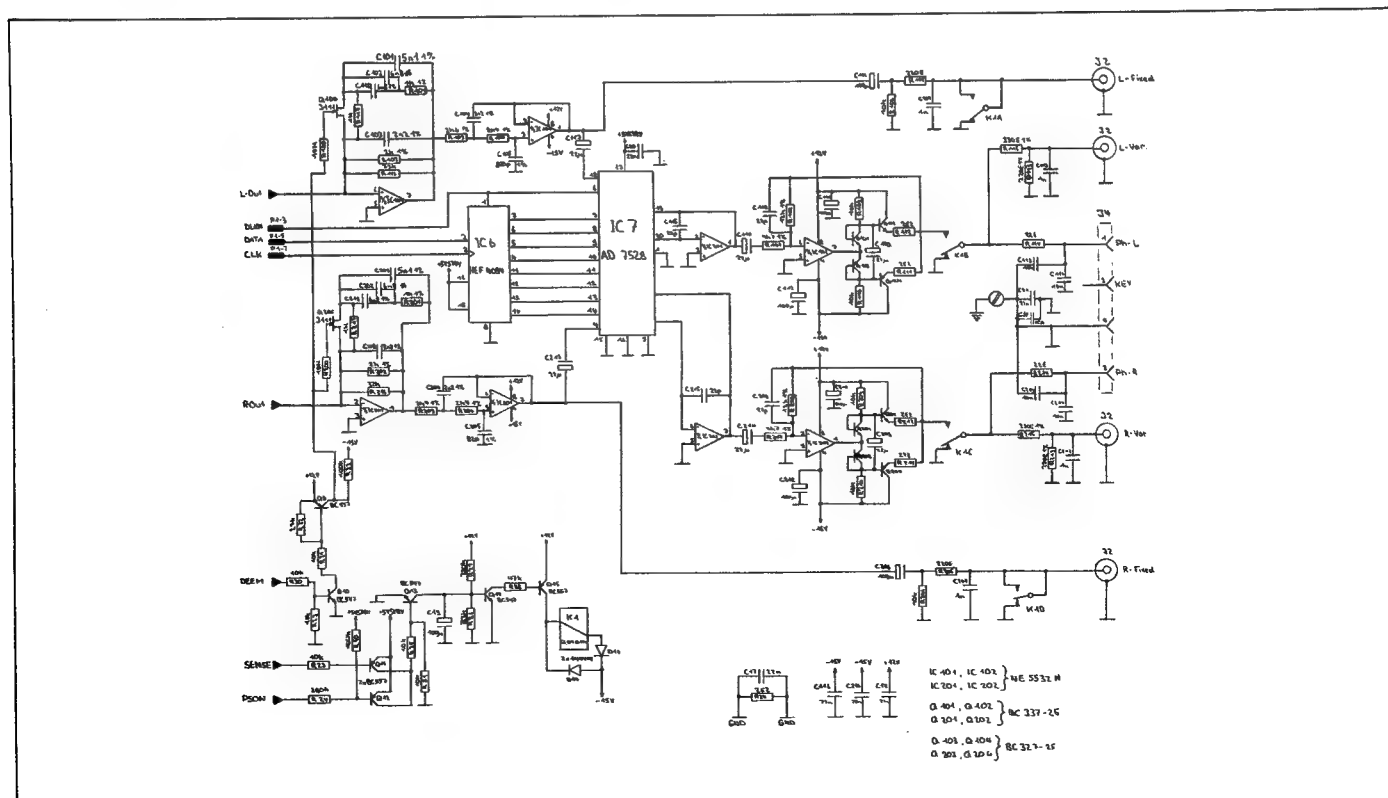
3.1.5 Level adjustment and headphones volume control

→ Fig. 3.3

The reference values for the volume control (B226-S) by the microprocessor via the data lines are buffered in IC 6 (shift register / latch) and control in parallel a dual digital/analog converter (IC7). The analog outputs serve as attenuators before the opamps (IC102, IC202), which have a fixed gain setting.

For specific applications the fixed maximum output voltage ($2 V_{eff}$) can be raised by using a larger resistor R108 (or R208 respectively). The ratio R_{old} to R_{new} is a measure of the gain increase (e.g. $R108 = 24 \text{ k}\Omega \rightarrow +6 \text{ dB}$); the maximum output level of the opamps is to be taken into consideration (clipping!).

To prevent power-on/off switching clicks, all outputs are short-circuited to ground via relay K1 in their off condition. The microprocessor controls the relay the PS0N signal. When the CD player is switched on, PS0N changes to "H" and Q12 and Q13 block. Capacitor C19 is slowly charged via R27 and Q14 and Q15 become conductive after approx. 2 seconds, the relay pulls up. When switching off PS0N becomes "L", Q12 and Q13 become conductive, capacitor C19 is discharged, Q14 and Q15 block, and relay K1 drops out without delay.



3.2 MICROPROCESSOR PCB 1.769.402/404

The following circuits are implemented on the MICROPROCESSOR PCB:

- Microprocessor system
- Drawer motor control
- IR receiver
- Serial link

3.2.1 Microprocessor system

→ Fig. 3.4

A microprocessor type MC6303Y (IC18) is used together with the external memories IC16 (ROM 32K x 8) and IC15 (RAM 2K x 8). The address controllers (IC11, IC8, IC12) together decode the five high-order bits (A10 ... A15) of the address bus and generate the select signals (SEL-RAM, SEL-ROM, SEL-PORT, EPORT1 ... EPORT4).

A reset circuit is implemented with IC9 which starts the microprocessor with a RESET when line voltage is applied. The complete microprocessor system and the I/O ports are fed by the +5 VSTBY supply voltage, even when the CD player has been switched off with the POWER key. In this way the microprocessor can switch the remaining assemblies on and off by means of the PSON signal.

Internal I/O ports

When the LOAD key is pressed, an NMI pulse is produced on pin 8. This pulse initializes the microprocessor system so that the latter can be restarted from an undefined state by pressing the LOAD key.

Via the BIBUSIN and BIBUSOUT ports the microprocessor can communicate with a REVOX B200 Timer Controller or B206 Transceiver connected to the SERIAL LINK socket.

The signals DRAW-B (drawer closed) and DRAW-F (drawer open) indicate the position of the CD drawer. The microprocessor closes or opens the drawer by means of the DRAWIN and DRAWOUT signals. The DRAWSense signal monitors the current of the drawer motor. If the current becomes too high (obstruction), the microprocessor reverses the sense of rotation of the motor.

With the RE-FIL signal the microprocessor counts the tracks in search operations; the TL-LAT signal is "L" when the laser pickup is no longer on the track.

Via the inputs QDATA, QCL, QRA, and SWAB/SSM the microprocessor reads the subcode of the disc, and with the MUTE output it mutes the analog outputs for CD ROMs. The digital output remains active which means that data of CD ROMs can be output.

External I/O ports

The microprocessor scans the keypad via the outputs P0...P5 and the inputs P10 ... P14 (IC15, IC7). The signals RE, RP, and TL provide information on the position of the laser pickup. With SI the microprocessor initiates a start-up procedure, the laser diode and the focus control circuit are activated.

The outputs B0 ... B3 (IC14) control the radial control circuit, the MUSB signal mutes all circuits during search operations, and with ATSB the output level is decreased by 12 dB.

IR-REC is switched to "H" for approx. 1 second when the microprocessor has received an IR command.

With its outputs (DLEN-1, DLEN-1, DATA, and CLK) IC13 controls the driver chips of the LC display.

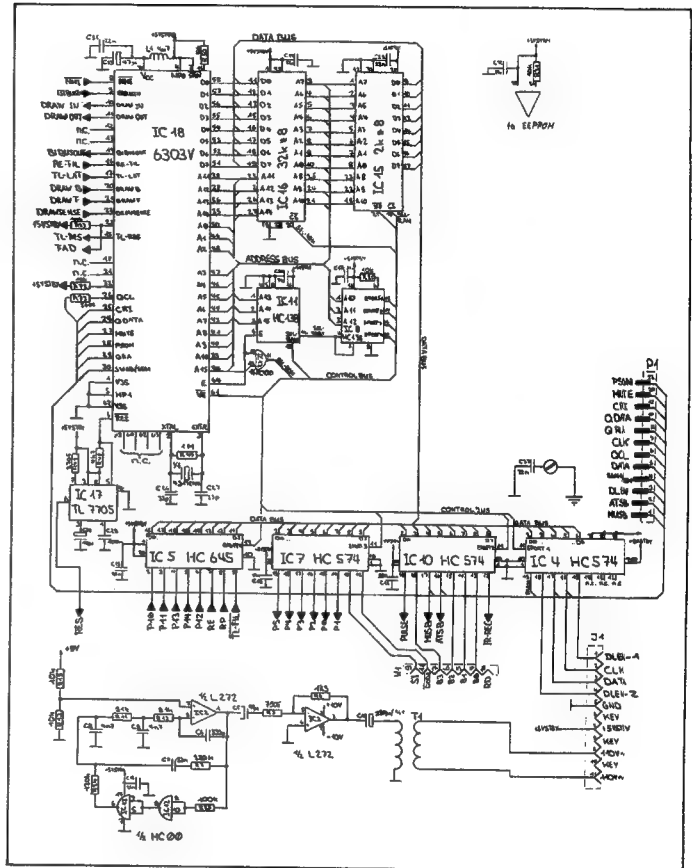


Fig. 3.4

3.2.2 Drawer motor system

→ Fig. 3.5

The drawer motor amplifier (IC14, Q1, Q2) is controlled by the microprocessor by means of the DRAWIN and DRAWOUT signals. If the drawer is blocked during the inward or outward movement, the motor currents and the motor voltage rise. The DRAW SENSE signal changes to "L", and the microprocessor changes the direction of the drawer movement.

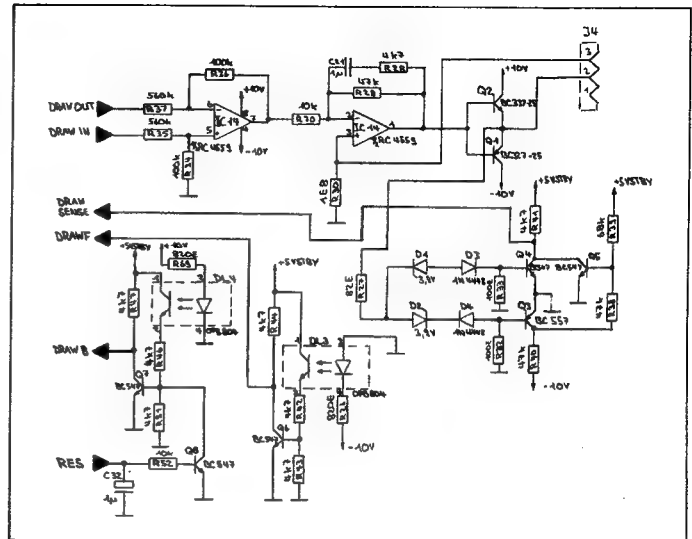


Fig. 3.5

3.2.3 IR receiver

→ Fig. 3.6

The IR commands received by the IR receiver diode (DP1) are decoded in the decoder (IC1) and transmitted to the microprocessor via the BIBUSIN line. The microprocessor acknowledges the input with IR-REC; the red LED (DL1) in the receiver window lights up for approximately 1 second.

3.2.4 Serial Link

→ Fig. 3.6

Control commands can be received and status feedbacks transmitted via the SERIAL LINK socket to which a REVOL B200 Audio/Video Controller or B206 Transceiver can be connected.

Pin 3 of the socket carries the serial data signal, pin 1 is connected to ground, and pin 5 carries the supply voltage +5 VSTBY.

The internal IR receiver can be disabled by applying 5 V between pins 4 and 2. This can also be done with the supply voltage fed to the socket: interconnect pins 1 and 2, and pins 4 and 5.

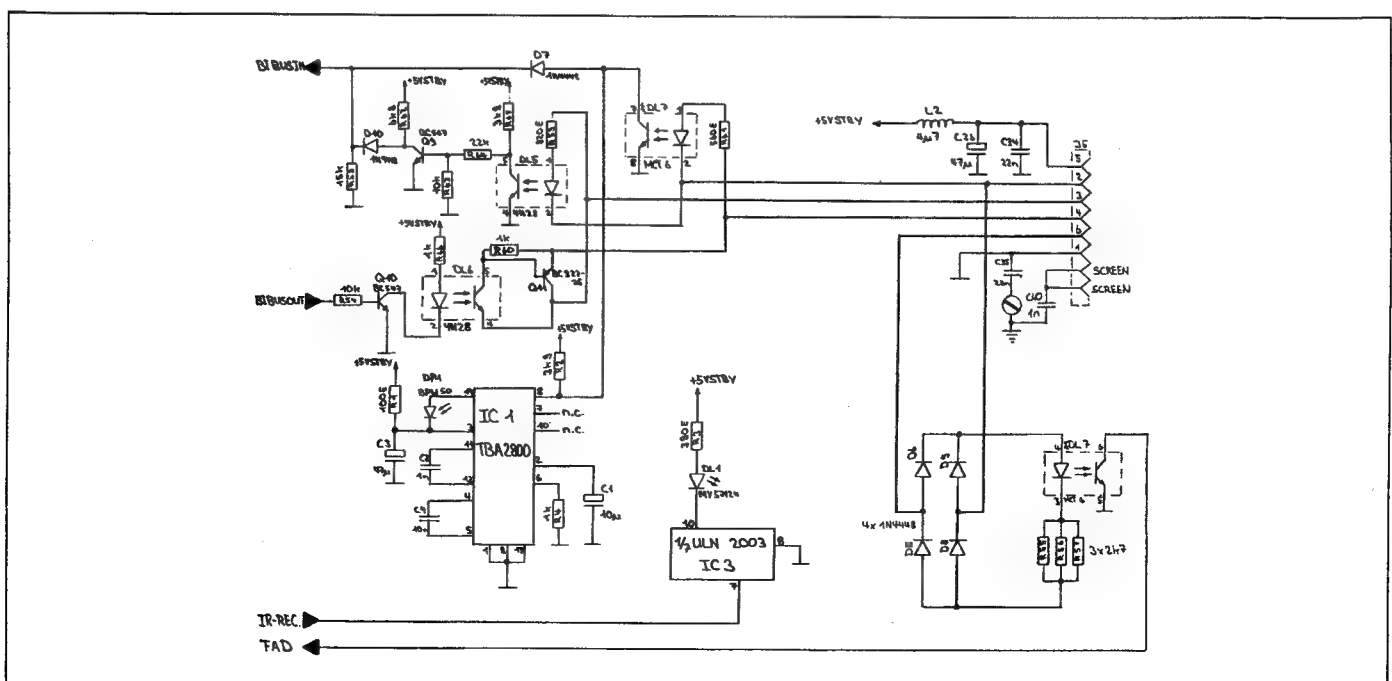


Fig. 3.6

3.3 SERVO PCB

→ Fig. 3.7

The following circuits are implemented on the SERV0 PCB:

- Laser current control
- Signal processor
- Focus control
- Radial control
- Automatic gain control (AGC)
- Disc motor control

3.3.1 Laser current control

Via transistor Q 6108, the LO signal controls the current through the laser diode. The monitor diode outputs for the laser current control circuit in IC 6101 (TDA 5708) a voltage (LM) that is proportional to the laser intensity.

The laser intensity can be adjusted with the trimmer potentiometer R 3106.

3.3.2 Signal processor

From the four photo diode currents (D1 ... D4) the signal processor IC 6101 (TDA 5708) produces the radial error signals RE1 and RE2 for the radial error control in IC 6102 (TDA 5709), as well as the control signals FE and FE_{LAG} for the focus control.

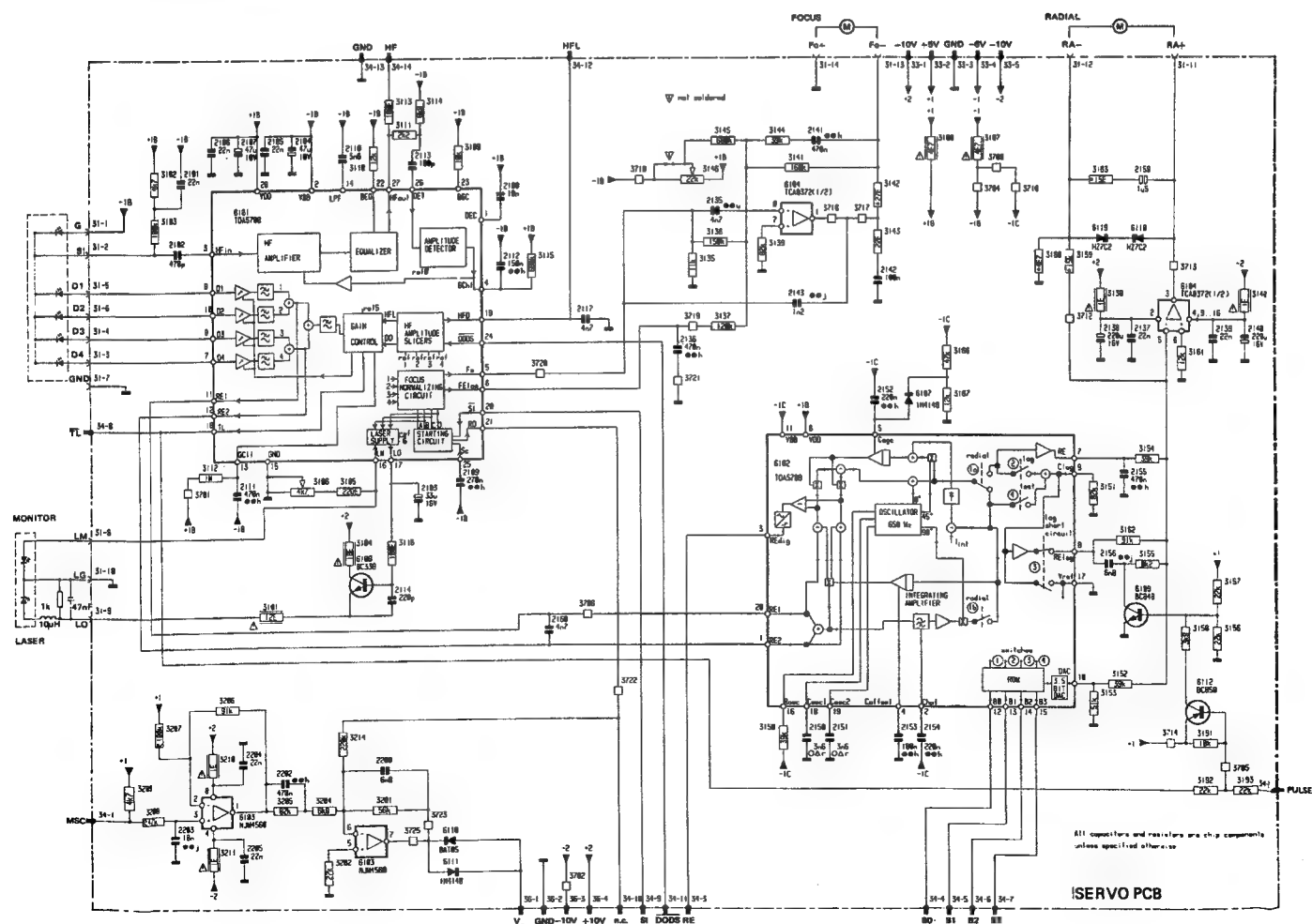


Fig. 3.7

3.3.3 Focus control

The focus control signals FE and FE_{LAG} derived in IC 6101 (TDA 5708) from the currents of the receiver diodes D1 through D4 are amplified in the power amplifier wired as a LEAD/LAG amplifier IC 6104 Pin 1,7,8 (TCA 0372) and control the focus lens drive.

3.3.4 Radial control

To permit the laser pickup to follow the track on the disc, the pickup is mounted in a swivel arm whose drive is designed similarly to a moving-coil instrument. The two radial error signals RE1 and RE2 are amplified and evaluated in IC 6102 (TDA 5709). The subsequent LEAD/LAG power amplifier IC 6104 Pin 3,5,6 (TCA 0372) controls the radial motor.

3.3.5 Automatic gain control (AGC)

A circuit implemented in IC 6102 (TDA 5709) stabilizes the bandwidth and consequently the gain of the radial control circuit. A 650 Hz sine wave signal (C 2150, C 2151, R 3150) is fed into the radial control circuit. If the gain varies, the phase relation of the returning signal also changes relative to the input signal. An integrated phase detector compares the two signals and determines the amplification factor.

3.3.6 Disc motor control

The disc speed is controlled to keep the data flow of the compact disc as steady as possible. Depending on the position of the laser pickup, the peripheral speed of the scanned track is set. The speed correction signal MSC is produced in the decoder (IC8 on the DECODER PCB). This pulse width modulated signal has a duty factor of approx. 50% in play mode; during the start phase (disc acceleration) the factor is 98% for approx. 0.2 seconds. In IC 6103 the signal is transformed into the disc motor control signal VC by an amplifier.

4. ALIGNMENT INSTRUCTIONS

4.1 GENERAL INFORMATION

CAUTION: Shock hazard when the unit is open!
Certain components carry power voltage.

Modules supplied by STUDER REVOX can be installed without prior alignment.

4.1.1 Required measuring instruments

- Cathode ray oscilloscope
- Digital voltmeter
- Test CD No. 3 Order No.: 46240
- Test CD No. 5A Order No.: 46241
- Glass CD for alignment of optical system Order No.: 46242
- AF voltmeter
- Autom. distortion meter
- Precision filter (for distortion measurement)
- 30 kHz low-pass filter
- A-weighting filter
- Alignment screwdriver
- "ESE" workplace kit Order No.: 46200

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4.2 TEST POINTS

4.2.1 Preparatory steps

- Detach the power plug.
- Remove top cover (Section 2.2.1).
- Reconnect the unit to the AC power source.

Designations:

The following table lists the signal names or pins of components. Interpretation:

C.Q1 = Collector of transistor Q1

B.Q1 = Base of transistor Q1

E.Q1 = Emitter of transistor Q1

R111/112 = common potential of resistors R111 and R112.

4.2.2 DECODER BOARD PCB 1.769.421/422

	Name	POWER ON Umin.	Ripple	POWER OFF Umin.	Ripple
1	SENSE	+ 9.2 V	1.4 V	+11.2 V	2.0 V
2	PSON	+ 4.4 V		0.0 V	
3	DZ1 (+)	+10.4 V	0.4 V	+13.2 V	0.1 V
4	DZ1 (-)	-11.4 V	0.6 V	-15.8 V	
5	C.Q1	+ 9.9 V	0.5 V	0.0 V	
6	B.Q1	+ 9.2 V	0.5 V	+13.0 V	0.1 V
7	C.Q2	0.0 V		+25.5 V	
8	B.Q2	- 0.7 V		0.0 V	
9	C.Q3	- 0.1 V		-25.0 V	
10	B.Q3	+ 0.7 V		+ 0.9 V	
11	C.Q4	0.1 V		+ 3.0 V	
12	B.Q4	+ 0.7 V		0.0 V	
13	C.Q5	-11.2 V	0.5 V	+ 0.2 V	
14	B.Q5	-10.7 V	0.5 V	-24.0 V	
15	E.Q6	+16.5 V	2.1 V	+22.5 V	
16	C.Q6	+17.0 V	2.1 V	+ 0.5 V	
17	E.Q7	-22.0 V	0.6 V	-26.5 V	
18	C.Q7	-21.5 V	0.6 V	0.0 V	
19	+5 VSTBY	+ 5.2 V		+ 5.2 V	
20	+5 V	+ 5.2 V		0.0 V	
21	-5 V	- 5.2 V		0.0 V	
22	+12 V	+12.0 V		0.0 V	
23	-15 V	-15.0 V		0.0 V	

-> Fig. 4.2

-> Fig. 4.3

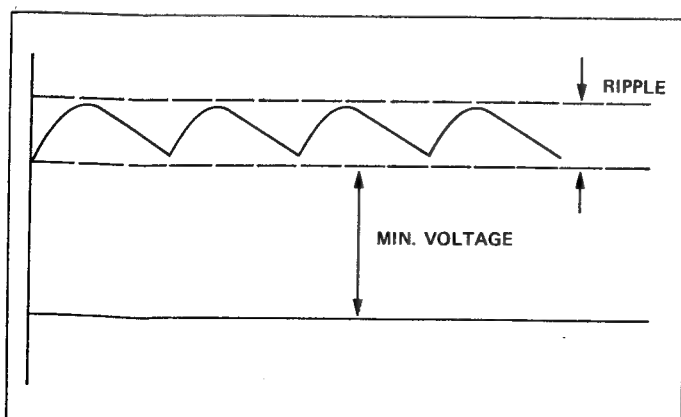


Fig. 4.2

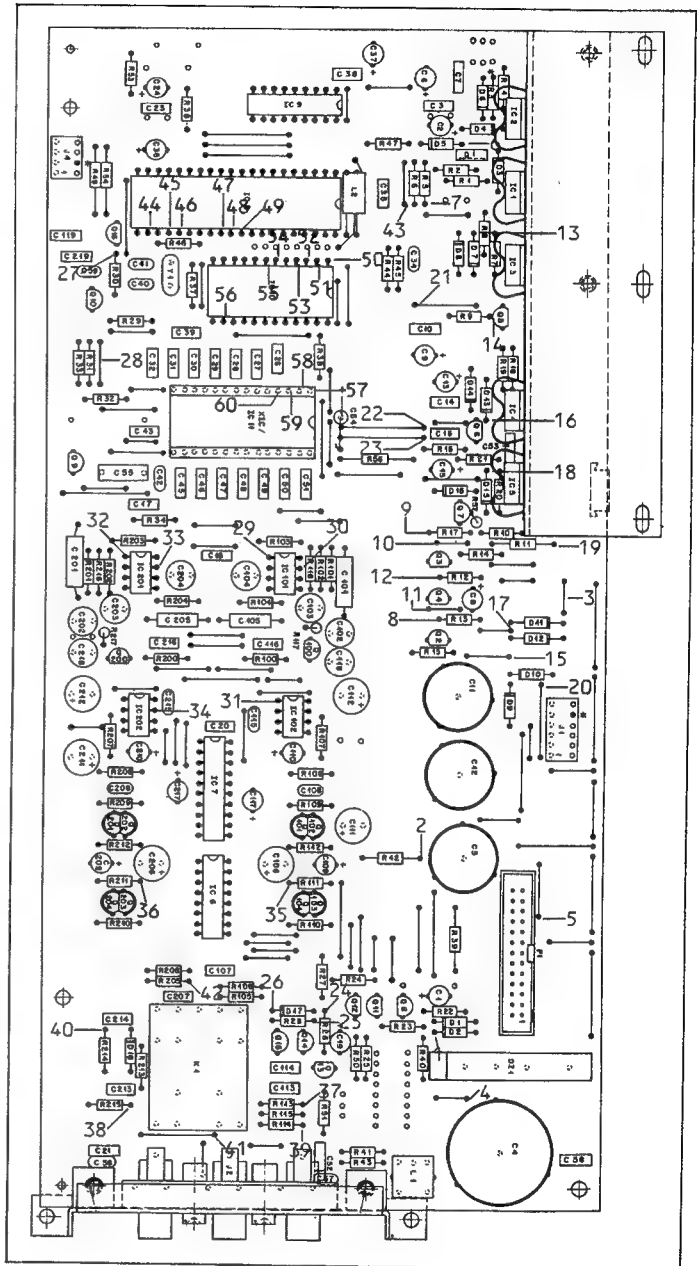


Fig. 4.1

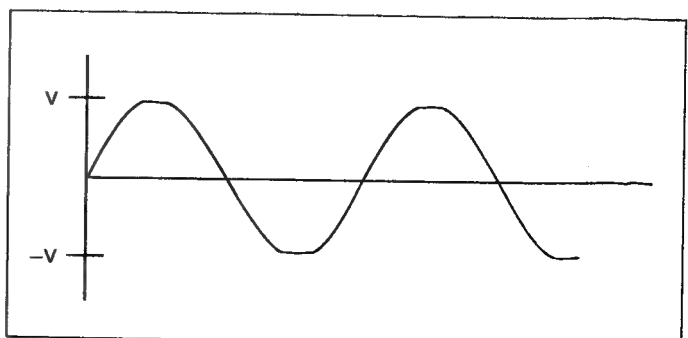


Fig. 4.3

	Name	POWER ON	POWER OFF
24	C.Q13	+ 0.7 V	0.0 V
25	C.Q14	+ 0.1 V	0.0 V
26	C.Q15	+12.0 V	0.0 V

	Name	PREEMPHASIS YES	PREEMPHASIS NO
27	DEEM	+ 4.0 V	0.0 V
28	C.Q9	+12.0 V	-15.0 V

- Mount test CD No. 3 and play TRACK 4/8 (1 kHz, 0 dB).
- Measure with oscilloscope.

	Name	Unom.	Umin.	FREQUENCY
29	IC 101: pin 1	7.0 Vpp	1.0 Vpp	1 kHz, sine-wave
30	pin 7	7.0 Vpp	1.0 Vpp	1 kHz, sine-wave
31	IC 102: pin 1	7.0 Vpp		1 kHz, sine-wave
32	IC 201: pin 1	7.0 Vpp	1.0 Vpp	1 kHz, sine-wave
33	pin 7	7.0 Vpp	1.0 Vpp	1 kHz, sine-wave
34	IC 202: pin 7	7.0 Vpp		1 kHz, sine-wave
35	R111/112	18.0 Vpp		1 kHz, sine-wave
36	R211/212	18.0 Vpp		1 kHz, sine-wave
37	L-VAR	7.0 Vpp		1 kHz, sine-wave
38	R-VAR	7.0 Vpp		1 kHz, sine-wave
39	PH-L	18.0 Vpp		1 kHz, sine-wave
40	PH-R	18.0 Vpp		1 kHz, sine-wave
41	L-FIXED	7.0 Vpp		1 kHz, sine-wave
42	R-FIXED	7.0 Vpp		1 kHz, sine-wave

	Name	Umin.	REFER TO:
43	MSC		Fig. 4.5
44	IC 8: pin 22	+ 2.6 V	
45	pin 24	+ 1.6 V	
46	pin 25	DC: 1.6 V AC: 1.5 Vpp	
47	pin 29		Fig. 4.4
48	pin 30		Fig. 4.4
49	pin 31		Fig. 4.4
50	IC 10: pin 1		Fig. 4.6
51	pin 2		Fig. 4.6
52	pin 3		Fig. 4.6
53	pin 4		Fig. 4.6
54	pin 6		Fig. 4.6
55	pin 7		Fig. 4.6
56	pin 14		Fig. 4.7
57	IC 11: pin 1		Fig. 4.8
58	pin 2		Fig. 4.8
59	pin 3		Fig. 4.8
60	pin 4		Fig. 4.8

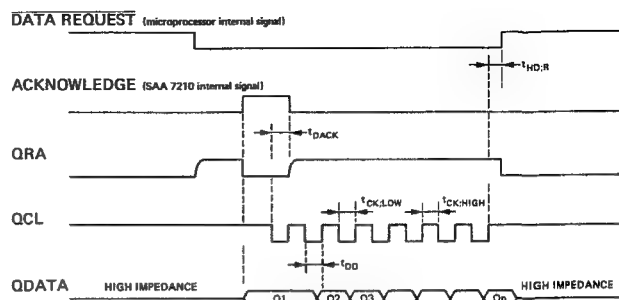


Fig. 4.4.1 Q-CHANNEL TIMING WAVEFORMS (normal mode)

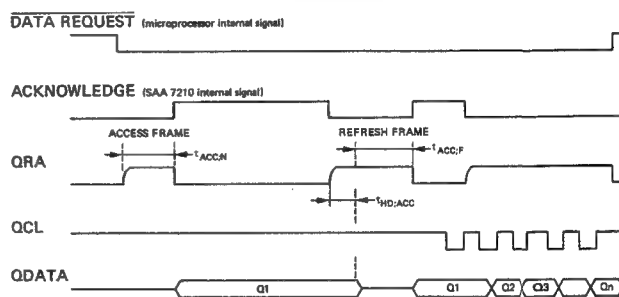


Fig. 4.4.2 Q-CHANNEL TIMING WAVEFORMS (refresh mode)

Fig. 4.4

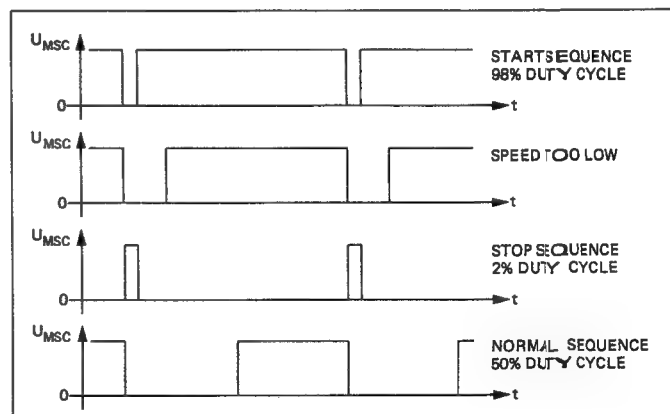


Fig. 4.5

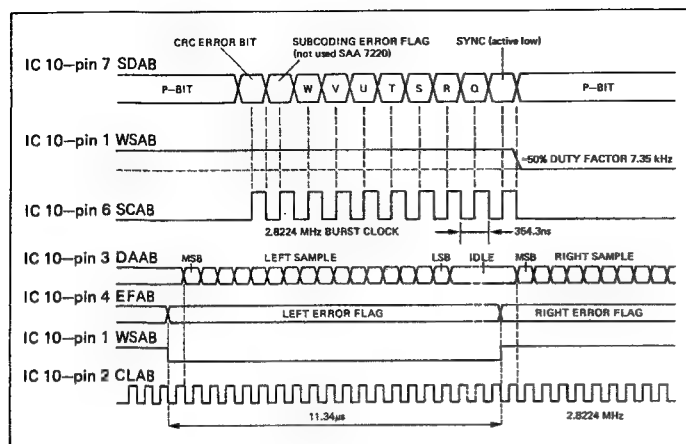


Fig. 4.6

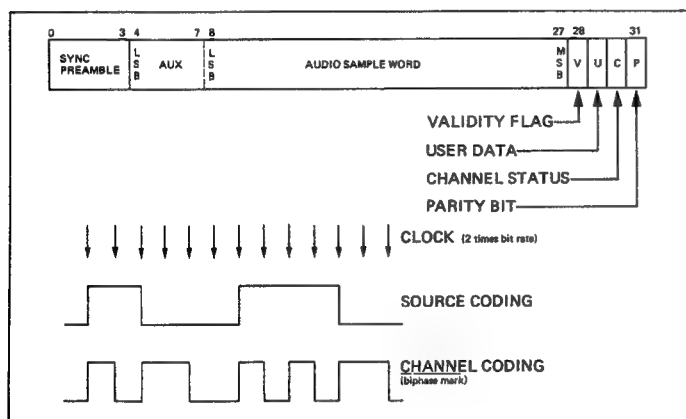


Fig. 4.7

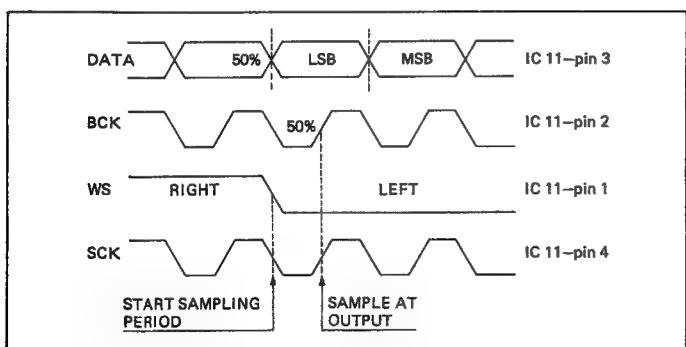


Fig. 4.8

Selection procedure for R52 (Decoder PCB):

-> Fig. 4.9...Fig. 4.11

The steps described in this document should be performed on the following circuit boards:

- ```
- B126 up to serial number 7815: 1.769.421.00
- B226-S up to serial number 101669: 1.769.422.00
```

**Procedure:**

- Solder 2 sockets 53.03.0218 to the circuit board.
- Solder a capacitor C60 33 pF 59.34.2330 to the back of the decoder IC 8 between pin 33 (SWAB/SSM) and ground.

To be performed in cold condition:

- Insert test CD No. 5A.
- The rating of the pull-up resistor R52 is determined with the aid of a resistor network and a rotary switch so that the positive angle of the PLL capture range is at 55°.
- Insert the rotary switch S into the R52 socket. The connecting cable between the PCB and the rotary switch should not be longer than 0.2 m.
- Turn the switch clockwise until the EFAB pulses (pin 36) are available (leave the switch in each position for approx. 5-10 seconds).
- Based on the scale of the rotary switch, read off the rating for R52.
- With the test CD No. 5A (track 9,17) check whether EFAB pulses or "clicks" are available.

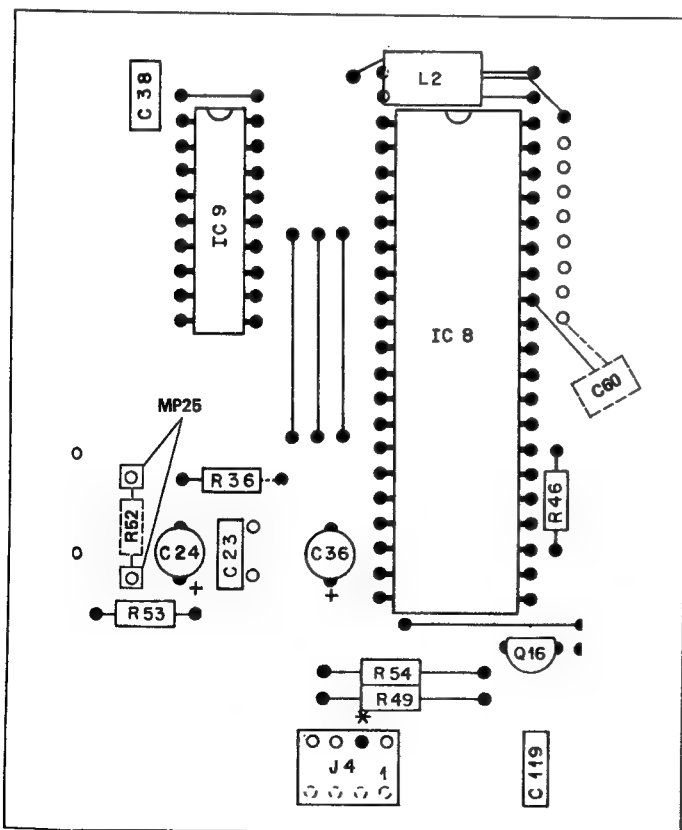


Fig. 4.9

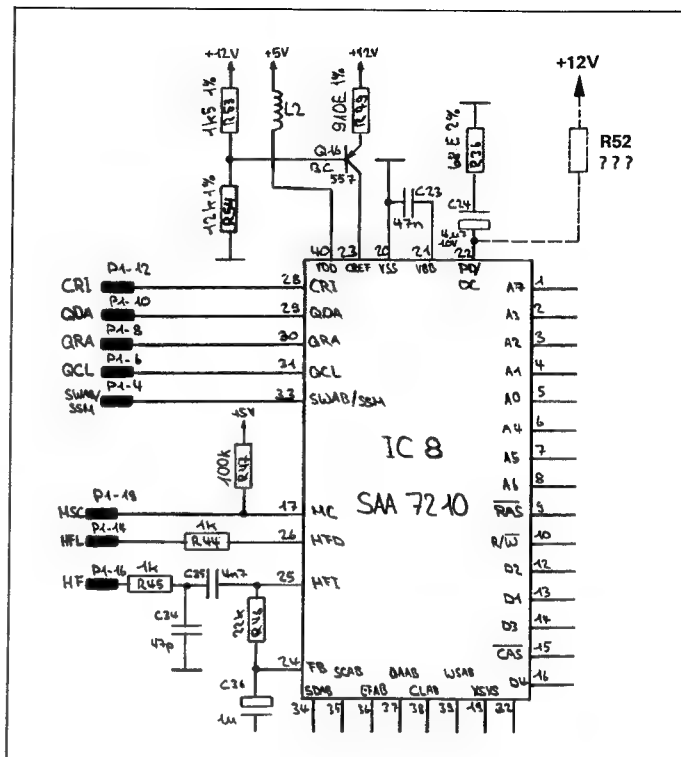


Fig. 4.10

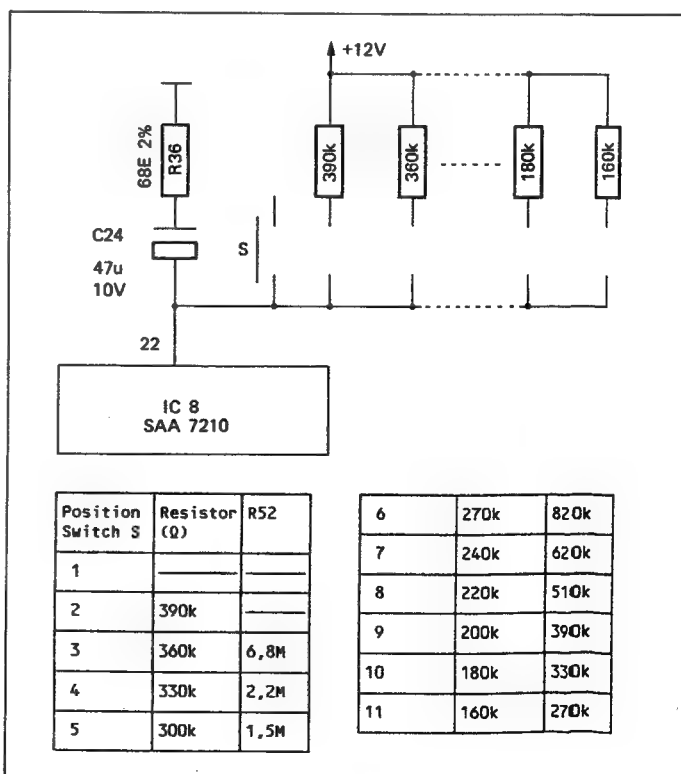


Fig. 4.11

## 4.2.3 MICROPROCESSOR PCB 1.769.402/404

■ Measuring conditions: Play mode with test CD No. if nothing else is specified.

|    | Name             | SIGNAL | PLAY      | STOP    | POWER OFF |
|----|------------------|--------|-----------|---------|-----------|
| 1  | IC 6:<br>pin 1   | RE     | TTL 650Hz | + 5.0 V | 0.0 V     |
| 2  | pin 6            | RE-FIL | TTL 650Hz | 0.0 V   | + 5.0 V   |
| 3  | pin 9            | TL     | + 5.0 V   | + 5.0 V | 0.0 V     |
| 4  | IC 7:<br>pin 12  | DODS   | + 5.0 V   | + 5.0 V | + 5.0 V   |
| 5  | pin 13           | SI     | 0.0 V     | + 5.0 V | + 5.0 V   |
| 6  | IC 9:<br>pin 9   | TL-LAT | + 5.0 V   | 0.0 V   | + 5.0 V   |
| 7  | pin 10           | TL-RES | + 5.0 V   | + 5.0 V | + 5.0 V   |
| 8  | IC 10:<br>pin 13 | B0     | + 5.0 V   | 0.0 V   | 0.0 V     |
| 9  | pin 14           | B1     | + 5.0 V   | + 5.0 V | 0.0 V     |
| 10 | pin 15           | B2     | + 5.0 V   | + 5.0 V | 0.0 V     |
| 11 | pin 18           | B3     | 0.0 V     | 0.0 V   | 0.0 V     |

|    | Name            | DRAWER MOVES OUT | DRAWER MOVES IN |
|----|-----------------|------------------|-----------------|
| 12 | DRAW IN         | 0.0 V            | + 5.0 V         |
| 13 | DRAW OUT        | + 5.0 V          | 0.0 V           |
| 14 | IC 14:<br>pin 1 | - 4.3 V          | + 4.3 V         |
| 15 | pin 7           | + 0.9 V          | - 0.9 V         |
| 16 | E.Q1/Q2         | - 4.2 V          | + 4.2 V         |

|    | Name      | DRAWER BLOCKED | DRAWER UNBLOCKED |
|----|-----------|----------------|------------------|
| 17 | DRAWSENSE | 0.0 V          | + 5.0 V          |

|    | Name   | DRAWER POSITION: |         |         |
|----|--------|------------------|---------|---------|
|    |        | IN               | BETWEEN | OUT     |
| 18 | DRAW F | 0.0 V            | 0.0 V   | + 5.0 V |
| 19 | DRAW B | + 5.0 V          | 0.0 V   | 0.0 V   |

|    | Name            | Signal | NO KEY<br>PRESSED | CORRESPONDING<br>KEY PRESSED |
|----|-----------------|--------|-------------------|------------------------------|
| 20 | IC 5:<br>pin 2  | P10    | + 5.0 V           | TTL SIGNAL                   |
| 21 | pin 3           | P11    | + 5.0 V           | TTL SIGNAL                   |
| 22 | pin 6           | P12    | + 5.0 V           | TTL SIGNAL                   |
| 23 | pin 4           | P13    | + 5.0 V           | TTL SIGNAL                   |
| 24 | pin 5           | P14    | + 5.0 V           | TTL SIGNAL                   |
| 25 | IC 7:<br>pin 15 | P0     | + 5.0 V           | TTL SIGNAL                   |
| 26 | pin 14          | P1     | + 5.0 V           | TTL SIGNAL                   |
| 27 | pin 16          | P2     | + 5.0 V           | TTL SIGNAL                   |
| 28 | pin 17          | P3     | + 5.0 V           | TTL SIGNAL                   |
| 29 | pin 18          | P4     | + 5.0 V           | TTL SIGNAL                   |
| 30 | pin 19          | P5     | + 5.0 V           | TTL SIGNAL                   |

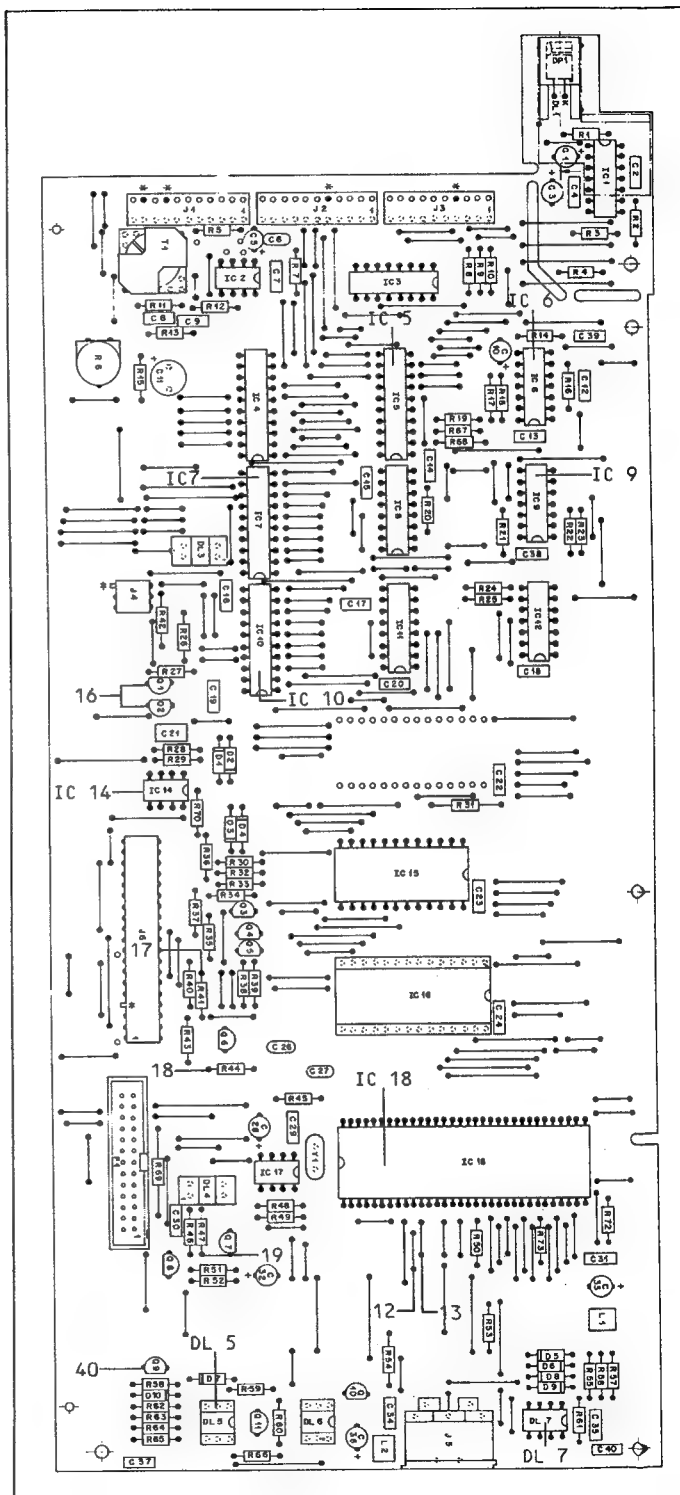


Fig. 4.12



|    | Name   | SIGNAL | PLAY                                 | SEARCH  | CUEING </> |
|----|--------|--------|--------------------------------------|---------|------------|
| 31 | IC 10: |        |                                      |         |            |
| 32 | pin 16 | ATSB   | + 5.0 V                              | + 5.0 V | 0.0 V      |
| 33 | pin 17 | MUSB   | + 5.0 V                              | 0.0 V   | + 5.0 V    |
|    | pin 19 | PULSE  | 0.0 V                                | + 5.0 V | PULSES     |
| 34 | IC 18: |        |                                      |         |            |
|    | pin 27 | MUTE   | 0.0 V @ AUDIO CD<br>+ 5.0 V @ CD ROM |         |            |

|    | Name   | Signal | WITHOUT<br>IR SIGNAL | WITH<br>IR SIGNAL |
|----|--------|--------|----------------------|-------------------|
| 35 | IC 10: |        |                      |                   |
|    | pin 12 | IR-REC | 0.0 V                | + 5.0 V           |

|    | Name   | Signal | POWER ON | REMARKS       |
|----|--------|--------|----------|---------------|
| 36 | IC 18: |        |          |               |
| 37 | pin 6  | RES    | + 5.0 V  | "LOAD": 0.0 V |
|    | pin 8  | NMI    | + 5.0 V  |               |

|    | Name  | SERIAL LINK CONNECTOR |                               |
|----|-------|-----------------------|-------------------------------|
|    |       | NO CONNECTION         | SHORTED PINS:<br>1<->2; 4<->5 |
| 38 | DL 7: |                       |                               |
|    | pin 7 | + 0.3 V               | + 0.1 V                       |
|    |       | NO CONNECTION         | SHORTED PINS:<br>1<->2; 3<->5 |
| 39 | DL 5: |                       |                               |
| 40 | pin 5 | + 5.0 V               | 0.0 V                         |
|    | C.Q9  | 0.0 V                 | + 3.7 V                       |

### 4.3 ADJUSTMENTS

#### NOTE:

The CD mechanism is an optomechanical precision instrument and should be touched only on the aluminum chassis and not be exposed to any dust. The optical laser system can be cleaned with an air brush. Do not use any solvents because they could cause severe damage if they penetrate the focussing mechanism. The CD play mechanism is equipped with self-lubricating bearings and consequently requires no maintenance.

#### SAFETY

The laser beam may damage the human eye. Avoid that people can look directly or indirectly (e.g. through mirrors or lenses) into the objective lens.

#### 4.3.1 Checking the optical laser system

-> Fig. 4.13 / Fig. 4.14

- Switch off the CD player and detach the power plug.
- Remove the play mechanism (Section 2.4.1).
- Set the detached die-cast play mechanism (without play mechanism case) under a light source. String a piece of thread or wire in front of the light source so that it casts a straight, thin shadow on the play mechanism.
- Put the small mirror on the laser lens, and the glass CD (both included in kit No.: 46242) on the play mechanism.
- Move the laser pickup arm to center position and turn the play mechanism in such a way that the shadow of the light source is in the center of the pickup arm and runs parallel to the latter.
- When observing the two shadow lines on the glass CD and on the mirror (Fig. 4.13), the lateral offset should not exceed 2.5 mm.
- Position the play mechanism in such a way that the shadow line runs perpendicular to the pickup arm but runs through the center of the mirror on the optical laser system (Fig. 4.14).
- The lateral offset of the shadow line should again not exceed 2.5 mm.

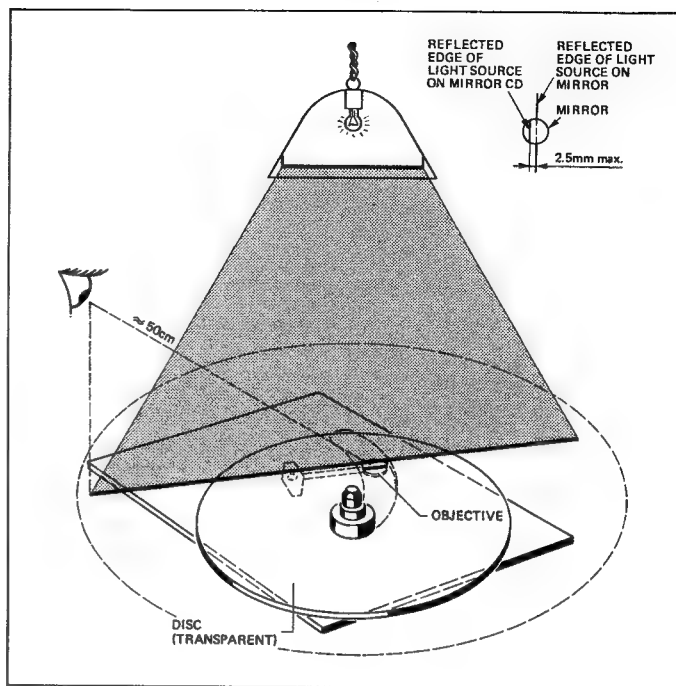


Fig. 4.13

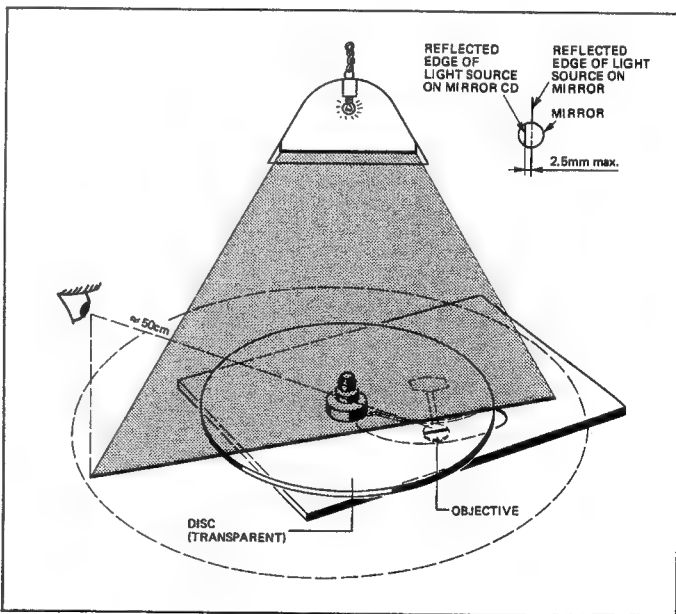


Fig. 4.14

#### 4.3.2 Correcting the optical laser system

-> Fig. 4.15

- Check the optical laser system (Section 4.3.1).
- Loosen the 2 screws [A] so that the bearing plate [B] can be shifted. (Fig. 4.15)
- Correct the position of the bearing plate according to Fig. 4.15.
- When the position is correct, carefully tighten the screws [A].
- Recheck the alignment of the optical laser system (Section 4.3.1).
- Reinstall the play mechanism.

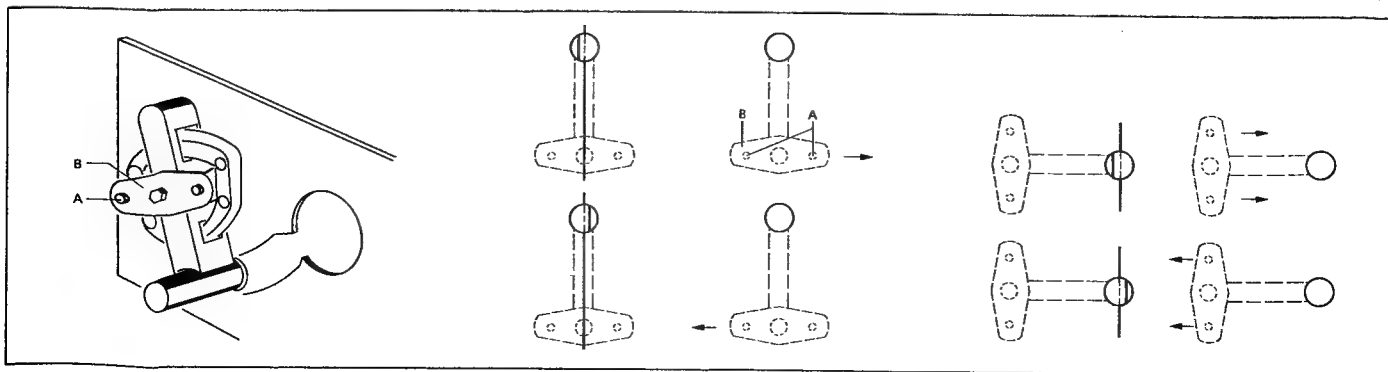


Fig. 4.15

#### 4.3.3 Adjusting the laser current

→ Fig. 4.16

- Remove the play mechanism from the unit (Section 2.4.1).
- Unscrew the SERVO PCB (Section 2.5.6).
- Turn the CD player upside down and place the play mechanism on the bench in normal operating position.
- Play the test CD No. 3 (track 1).
- With the trimmer potentiometer R 3106 on the SERVO PCB adjust the reading on the AF voltmeter to 50 mV DC  $\pm 5$  mV by means of R 3102 (4k7).

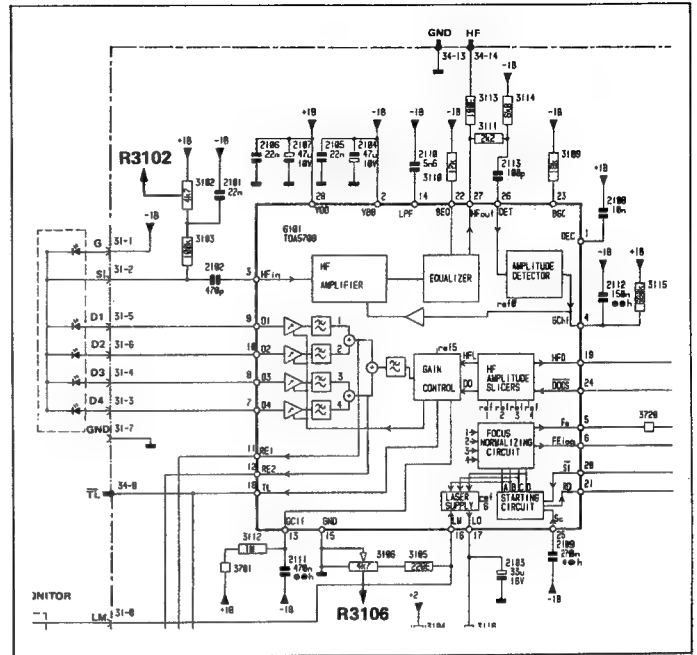


Fig. 4.16

#### 4.3.4 Focus-offset adjustment

→ Fig. 4.17

The CD-drive chassis must be in its normal operating position. Use the Philips test cd no.3, for measuring take a digital voltmeter.

- Start the CD-drive by turning step by step the trimmpotentiometer R 3106 (SERVO PCB) from position 1,2,3,...etc. onwards.
- After the Laser is in focus adjust with R 3146 to achieve a voltage drop of +400 mV measured over C 2136.

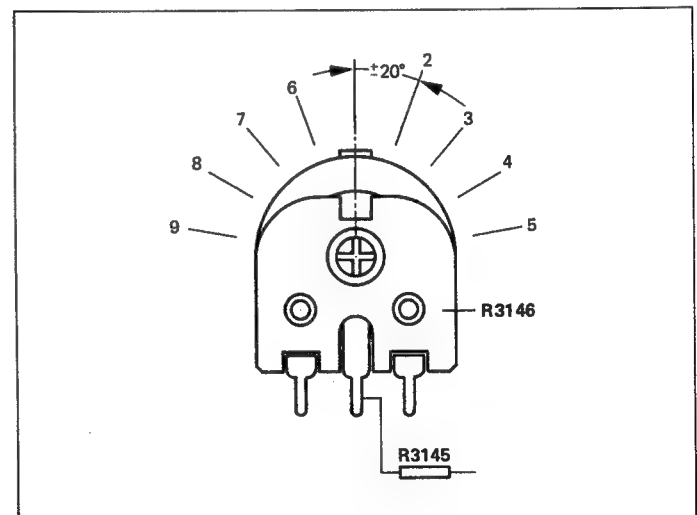


Fig. 4.17

## 4.3.5 Check of the motor control (Hall control)

-&gt; Fig. 4.18 / Fig. 4.19

- Interrupt the Vc connection by unsoldering the connector point 02-4 on the MOTOR PCB.
- Connect a trimming potentiometer of 22 kΩ and a resistor of 3.3 kΩ to the MOTOR PCB between 02-3 and -6V supply on the SERVO PCB.
- Connect the slider with 2-4 (Vc) via switch S.
- Measure with an oscilloscope first across 3094 and hereafter across 3093.
- Do not measure across both resistors at the same time, since the currents are measured the +2 lead and the -2 lead.
- Put the trimming potentiometer in the maximum position. The slider is then connected to the resistor of 3.3 kΩ.
- Insert a disc into the drawer.
- Switch the cd player to the SERVICE MODE:
  - With the unit switched off, press the keys PROGRAM STEP +/- resp. STEP +/- and simultaneously switch on the unit by pressing the POWER key.
  - The display now shows the flashing message STEP and the digit 1.
- Switch S on and adjust the trimming potentiometer back in such a way that three complete pulses are visible during 0.1 sec. The polarity of the oscilloscope must be chosen so that the top of the pulses are in upward. The rotor magnet of the motor has 3 polespairs. Therefore the behaviour of the motor during one revolution with a speed of 600 r.p.m is visible.
- Measure with a DC-voltmeter on 02-4 (Vc):
  - Vc = -1.7 +/- 0.5 V
  - Measure across 3094, value 1 = maximum 56.4 mV.
  - Measure across 3093, value 2 = maximum 58.8 mV.
  - Difference: (value 1 - value 2) maximum 6 mV.
 If the difference exceeds 6 mV, while value 1 and value 2 are below the maximum, the motor is then wrong!
- For a good functioning the signal has to meet the following values (Fig.4.19):

Top is not specified by value  
 Top difference: < 24 mV  
 Flank difference: < 36 mV  
 Foot: is not specified

**REMARK:**

- Flank difference is at one asymmetrical pulse.
- Foot is DC offset.
- Examples of the wave form faults see Fig. 4.19.
- Adjust the voltage on 02-4 (Vc) with the potentiometer back to -0.9 V. The motor must still turn. Although the top height is much lower now the wave form has to be symmetrical and rounded.
- The service mode can be terminated by switching off the unit or by pulling out the power cord. After the next power ON the CD player is ready for normal operation.

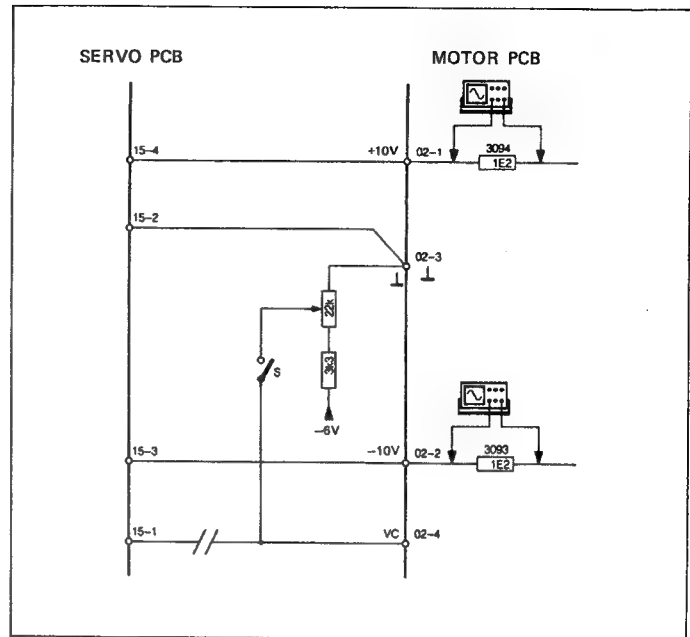


Fig. 4.18

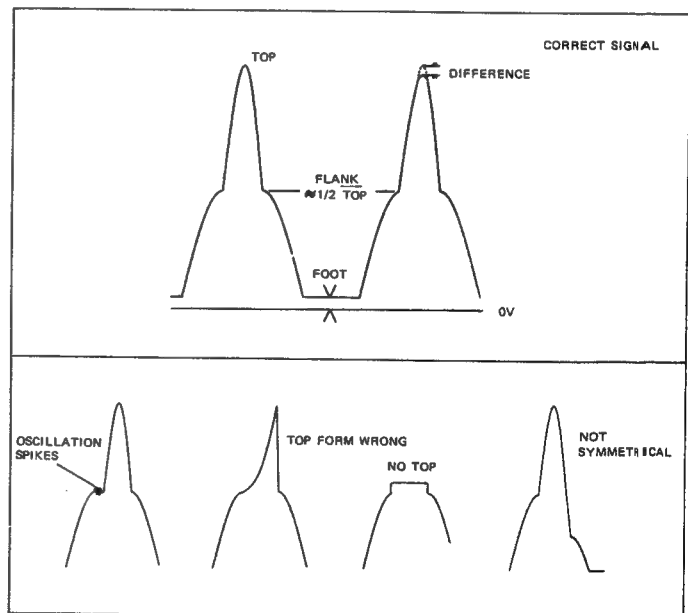


Fig. 4.19

#### 4.4 MEASURING THE AUDIO DATA

- Distortion
- Output level
- Frequency response
- Channel separation
- Signal-to-noise ratio, linear
- Signal-to-noise ratio, weighted
- Phase linearity
- Listening test

##### 4.4.1 Harmonic distortion

-> Fig. 4.20

- Measuring circuit according to Fig. 4.20 with distortion measurement filter on the VARIABLE OUTPUT [2].
- With the VOLUME + [20] key adjust for maximum output level.
- Play test CD No. 3. For measuring the left-hand channel play TRACK 4, for the right-hand channel TRACK 8. For all frequencies on TRACK 4 and TRACK 8, the distortion should be: < 0.005% (B126)  
< 0.004% (B226-S)
- The same measurements have to be performed on the FIXED OUTPUT [1].

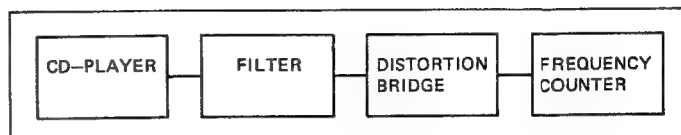


Fig. 4.20

##### 4.4.2 Output level and channel balance

- With the VOLUME + [20] key adjust for maximum output level.
- Play test CD No. 3, TRACK 2/3.
- Measure the levels of the outputs FIXED [1] and VARIABLE [2] with an AF voltmeter.
- The measured value should be 2.5 V RMS  $\pm$  1dB.  
Channel balance: better than 0.2 dB.

##### 4.4.3 Frequency response

- Check the output level (Section 4.4.2).
- Play test CD No. 3, TRACK 2 (left-hand channel, 1 kHz) and set the level reference to 0 dB.
- Play test CD No. 3, TRACK 4 for the left-hand channel and TRACK 8 for the right-hand channel.
- At maximum output level the frequency response of the outputs FIXED [1] and VARIABLE [2] must be within a tolerance of  $\pm 0.1$  dB at all the test frequencies (41 Hz, 101 Hz, 997 Hz, 3'163 Hz, 6'373 Hz, 10'007 Hz, 16'001 Hz, 19'001 Hz, 19997 Hz).

##### 4.4.4 Channel separation

- With the VOLUME + [20] key adjust for maximum output level.
- Play test CD No. 3, TRACK 2 (left-hand channel, 1 kHz) and set the level reference to 0 dB.
- Measure both outputs via a 30 kHz low-pass filter:  
TRACK 4 for measuring the cross-talk L  $\rightarrow$  R  
TRACK 8 for measuring the cross-talk R  $\rightarrow$  L
- The channel separation should be at least 90 dB.

##### 4.4.5 Signal-to-noise ratio, linear

- With the VOLUME + [20] key adjust for maximum output level.
- Play test CD No. 3, TRACK 2 (left-hand channel, 1 kHz) and set the level reference to 0 dB.
- Play test CD No. 3 TRACK 18 ("digital silence").
- Measure the outputs FIXED [1] and VARIABLE [2] via a 30 kHz low-pass filter.  
The measured value should be: > 100 dB (B126)  
> 102 dB (B226-S)

#### 4.4.6 Signal-to-noise ratio, weighted

- With the VOLUME + [20] key adjust for maximum output level.
- Measure the outputs FIXED [1] and VARIABLE [2] via a 30 kHz low-pass filter and an A-weighting filter.
- Play test CD No. 3, TRACK 2 (left-hand channel, 1 kHz) and set the level reference to 0 dB.
- Play test CD No. 3 TRACK 18 ("digital silence").
- The measured value should be: > 106 dB (B126)  
> 108 dB (B226-S)

#### 4.4.7 Phase linearity

-> Fig. 4.21

- With the VOLUME + [20] key adjust for maximum output level.
- Play test CD No. 3 TRACK 20.
- Connect oscilloscope to an output and visually assess the square-wave signals at 100 Hz, 400 Hz, 1002 Hz, and 5512 Hz. The curves should be shaped symmetrically. (Fig. 4.21)

#### 4.4.8 Listening test

- Play CD No. 5A and listen for play errors (interruptions).
- The test CD contains the following simulated errors:
  - information interruptions of 400 ... 900  $\mu$ m on TRACKS 5 to 9.
  - Black dots of 300 ... 800  $\mu$ m on TRACKS 11 to 17.
  - Simulated fingerprint on TRACKS 18 and 19.
- This listening test is possible only with a perfect and carefully handled test CD. Additional errors could be cumulative to the simulated errors and interrupt the play process.

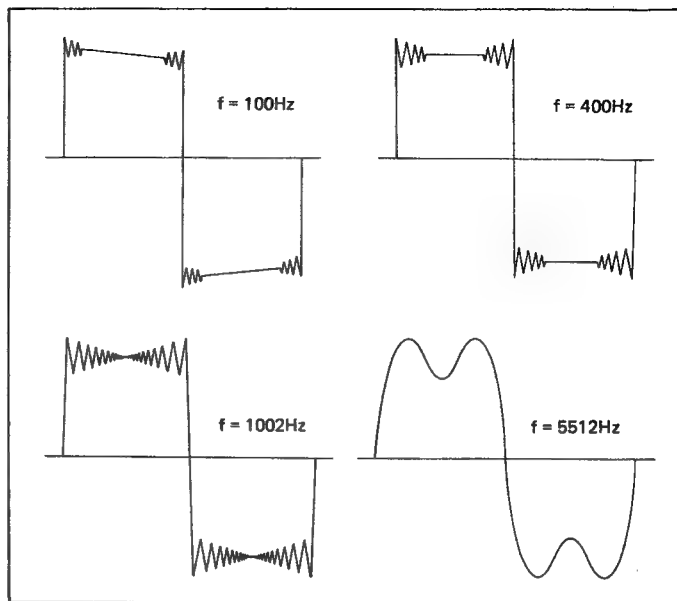
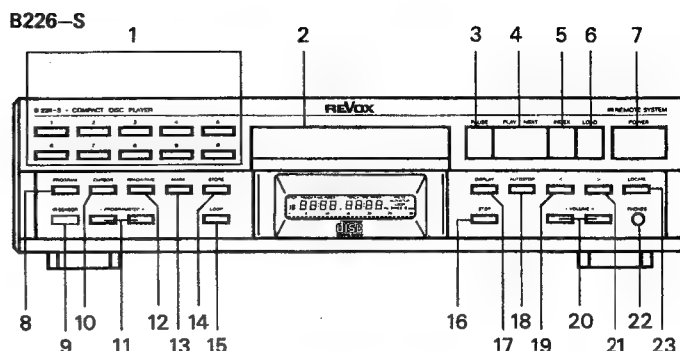
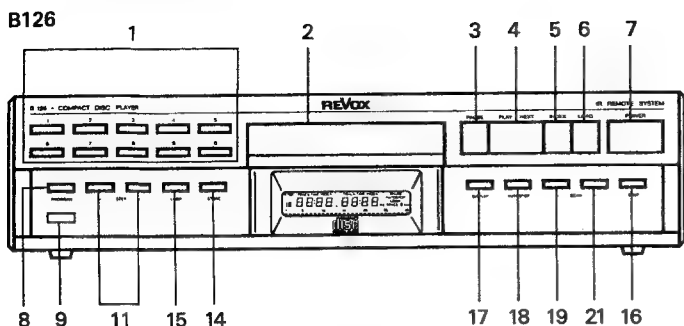


Fig. 4.18

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## 1. GÉNÉRALITÉS



## 1.1 ÉLÉMENTS DE COMMANDE

# = Ces touches permettent la mise en fonction directe de l'appareil.  
 La touche PLAY/NEXT [4] enclenche l'appareil en mode de lecture; le premier morceau (TRACK) du disque placé est joué.  
 La touche STOP [16] met seulement l'appareil en fonction; Les touches PAUSE et LOCATE enclenchent l'appareil en pause au premier morceau (TRACK).  
 La touche PLAY/NEXT [4] démarre la lecture; si une touche numérale [1] est pressée avant PLAY/NEXT [4], le morceau ainsi présélectionné démarre directement.

## Éléments de commande Fonction

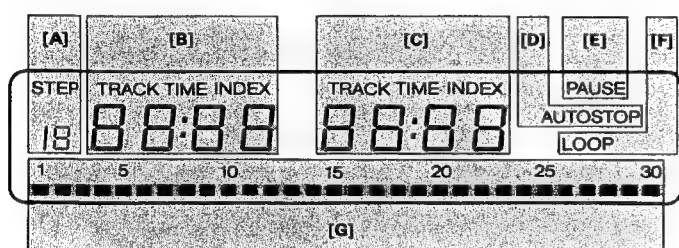
- [1]# Touches 0 - 9 Touches d'introduction de chiffres. Pour la sélection directe d'un morceau de musique (TRACK ou INDEX) avec la touche PLAY/NEXT [4] respectivement INDEX [5].
- [2] Tiroir à disque  
 Ce tiroir amène le disque compact à l'unité laser. Il est entré et sorti par pression sur la touche LOAD [6].
- [3]# PAUSE  
 Cette touche permet d'interrompre la reproduction à tout moment. La touche PLAY/NEXT [4] fait poursuivre la reproduction à l'endroit de l'interruption.
- [4]# PLAY/NEXT  
 Touche de reproduction. Une nouvelle pression fait jouer le prochain morceau. En la pressant après les touches d'introduction de chiffres [1], on fait jouer le morceau choisi.
- [5] INDEX  
 Touche d'index. Une nouvelle pression fait jouer le morceau à partir du prochain index. En la pressant après avoir actionné les touches d'introduction des chiffres [1], on fait jouer l'index choisi. Si le disque n'est pas pourvu d'un index, cette touche fait toujours sauter au prochain morceau (TRACK).
- [6]# LOAD  
 En actionnant cette touche, on fait sortir et respectivement entrer le tiroir à disque [2].
- [7]# POWER  
 Cette touche permet de mettre l'appareil sous tension et hors tension. Certaines parties de l'appareil restent cependant toujours sous tension (STANDBY).

- [8] PROGRAM  
 Cette touche permet d'enclencher et de déclencher le mode d'introduction.
- [9] IR-SENSOR  
 Fenêtre du récepteur infrarouge
- [10] CURSOR  
 Le CURSOR permet d'aller vers n'importe quelle position de l'affichage et de l'éditer si nécessaire. En version B226-S, les positions de l'affichage pouvant être éditées clignotent.
- [11] PROGRAMSTEP +/-  
 Ces touches permettent de "feuilleter" en haut [+] ou en bas [-] pendant la programmation.
- [12] TRACK/TIME  
 Cette touche permet de commuter, pendant la programmation, l'affichage de l'introduction TRACK (morceau) à TIME (heure).
- [13] MARK  
 En mode de programmation, cette touche permet de placer un repère de départ et/ou d'arrêt pendant l'écoute (seulement DISC-TIME).
- [14] STORE  
 Touche d'enregistrement mémoire, à presser après chaque introduction de pas de programme.
- [15] LOOP  
 Cette touche fait répéter sans cesse un disque ou un programme (service continu).
- [16]# STOP  
 Cette touche interrompt la reproduction et ramène le lecteur à laser en position de départ (interrompt également un programme en cours).
- [17] DISPLAY  
 Commutation de l'indication d'heure TIME dans la case [C]. Quatre indications sont possibles:  
 a) DISC-TIME (temps depuis le début du disque)  
 b) TRACK-TIME (temps depuis le début du morceau (TRACK))  
 c) TRACK-REMAINING-TIME (temps restant jusqu'à la fin du morceau (TRACK))  
 d) DISC-REMAINING-TIME (temps restant jusqu'à la fin du disque).
- [18] AUTOSTOP  
 Cette touche interrompt la reproduction à la fin du morceau en cours ou du pas de programme en cours (PAUSE). En pressant la touche PLAY/NEXT [4], la reproduction se poursuit.



- [19] < Cette touche permet d'aller vers n'importe quel point d'un morceau vers le début (en la maintenant enfoncée, on a un retour continu).
- [20] VOLUME +/- Ces touches modifient le niveau de la sortie casque ainsi que de la sortie VARIABLE OUTPUT.
- [21] > Cette touche permet d'aller vers n'importe quel point d'un morceau vers la fin (en la maintenant enfoncée, on a une avance continue).
- [22] PHONES Fiche pour casque 200 ... 600  $\Omega$ .
- [23] # LOCATE Fonction locator. En actionnant cette touche, on interrompt la reproduction et l'on commute l'appareil sur PAUSE à l'endroit de la dernière instruction PLAY/NEXT.

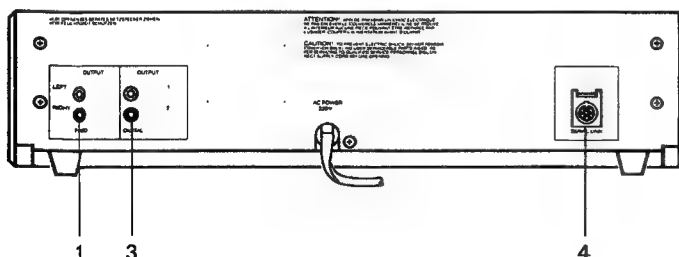
## PANNEAU D'AFFICHAGE



- [A] STEP Numéro du pas de programme actuel; en mode programmation, le mot STEP clignote; en mode normal, cet affichage n'est pas visible.
- [B] TRACK TIME INDEX Il est affiché ici, au premier et au deuxième chiffre, le morceau (TRACK) actuel, au troisième et au quatrième chiffre l'index correspondant (s'il y en a un). En mode programme du B226-S, il peut également y avoir ici un temps de départ (min. et sec.).
- [C] TRACK TIME INDEX On a ici l'affichage du temps en cours du morceau (TRACK) (depuis le début du morceau) ou du disque (depuis le début du disque). En mode programme du B226-S, on peut ici également avoir le temps de fin, un morceau de fin ou un index de fin.
- [D] AUTOSTOP Visible lorsque le mode AUTOSTOP est activé.
- [E] PAUSE Affichage de la fonction PAUSE.
- [F] LOOP Visible lorsque la fonction LOOP est activée (service continu).
- [G] Table des matières; points manquants à gauche = morceaux déjà joués, nombre total de points = nombre de morceaux sur le disque.
- Le Volume est affiché brièvement pendant le réglage du volume casque ou du niveau de la sortie variable (résolution env. 2 dB/segment).

## 1.2 PANNEAU DE RACCORDEMENT

## B126

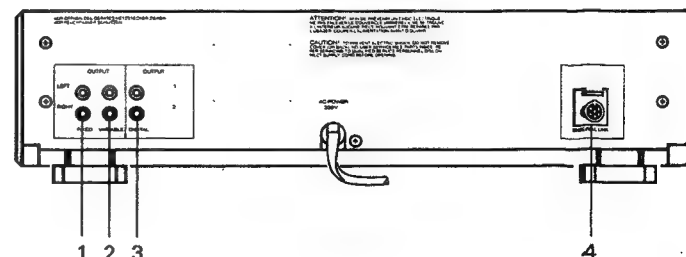


## Raccord

## Fonction

- [1] FIXED OUTPUT Sortie niveau standard:  
 $U_{max} : 2,00 V_{eff}$   
 $R_i : < 500 \Omega$ , protection contre les courts-circuits
- [2] VARIABLE OUTPUT Sortie à niveau variable:  
 $U : 0,00 \dots 2,00 V_{eff}$   
 $R_i : < 500 \Omega$ , protection contre les courts-circuits

## B226-S



- [3] DIGITAL OUTPUT 2 sorties digitales équivalentes:  
 Information sérielle complète du CD;  
 canal gauche, canal droit, et sous-codes.  
 $U_{max} : 0,50 V_{cc}$   
 $R_i : 75 \Omega$
- [4] SERIAL LINK Connecteur de commande sérielle permettant le raccordement d'un récepteur IR B206 externe ou d'un contrôleur B200 (B200-S). Cette prise permet également de couper le récepteur IR interne (relier la broche 1 à la broche 2 et la broche 4 à la broche 5).

## 2. INSTRUCTIONS DE DÉMONTAGE

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## 2.1 GÉNÉRALITÉS

**ATTENTION:** Avant de retirer des parties du boîtier et des ensembles électroniques, l'appareil doit être coupé du réseau!

## Indications:

- Lors du montage et du démontage de composants électroniques, il convient de tenir compte des directives données au début du présent manuel sur la manipulation des composants MOS.
- Pour éviter d'endommager les câbles et connecteurs détachés lors des travaux de montage et de démontage, on les placera dans les ouvertures prévues à cet effet sur les parties du boîtier et de montage.

## 2.1.1 Outillage nécessaire

|                                                         |          |     |
|---------------------------------------------------------|----------|-----|
| 1 tournevis cruciforme .....                            | grandeur | 0   |
| 1 tournevis cruciforme .....                            | grandeur | 1   |
| 1 tournevis cruciforme .....                            | grandeur | 2   |
| 1 tournevis .....                                       | grandeur | 2   |
| 1 tournevis .....                                       | grandeur | 3   |
| 1 pince plate                                           |          |     |
| 1 pincette                                              |          |     |
| 1 clé pour vis à six pans creux "Inbus" ..              | grandeur | 2   |
| 1 clé pour vis à six pans creux "Inbus" ..              | grandeur | 3   |
| 1 clé pour vis à six pans creux "Inbus" ..              | grandeur | 4   |
| 1 clé pour vis à six pans creux "Torx" ...              | grandeur | T 8 |
| 1 clé pour vis à six pans creux "Torx" ...              | grandeur | T10 |
| 1 clé à fourche .....                                   | grandeur | 11  |
| 1 équipement de poste de travail "ESE" no. comm.: 46200 |          |     |

Recommandation: recouvrir le poste de travail de tissu en coton pour éviter d'égratigner l'appareil.

## 2.1.2 Assemblage

L'assemblage se fait dans l'ordre inverse des instructions de démontage, en tenant compte des indications spécifiques.

## 2.2 BOITIER

### 2.2.1 Couverture supérieure

-> fig. 2.1

- Desserrer 5 vis [1] à la face arrière de l'appareil tout en maintenant le couvercle légèrement abaissé à l'arrière. (Le couvercle est légèrement prétendu d'usine).

#### Indication de montage:

Glisser d'abord le couvercle dans la rainure du panneau avant puis presser ensuite l'arrière vers le bas et serrer les vis.

### 2.2.2 Panneaux latéraux

-> fig. 2.2

- Desserrer chaque fois 2 vis [2].

B126:

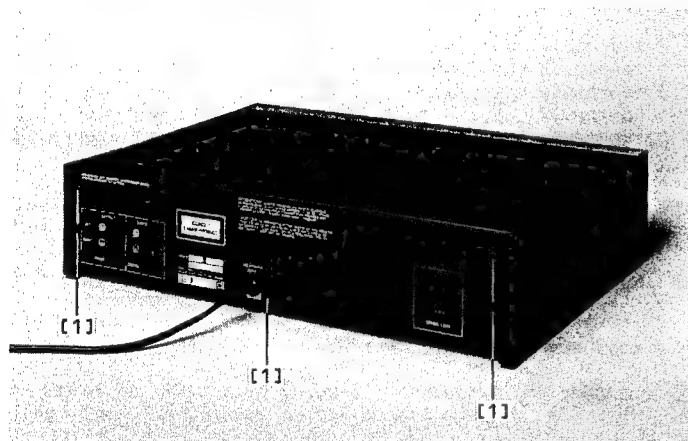


Fig. 2.1

B226-S:

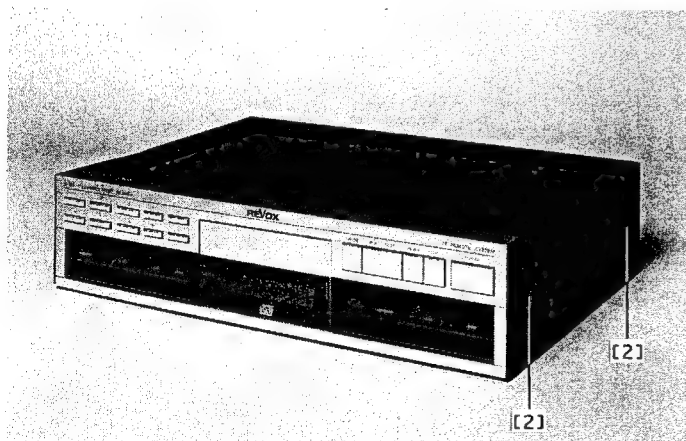
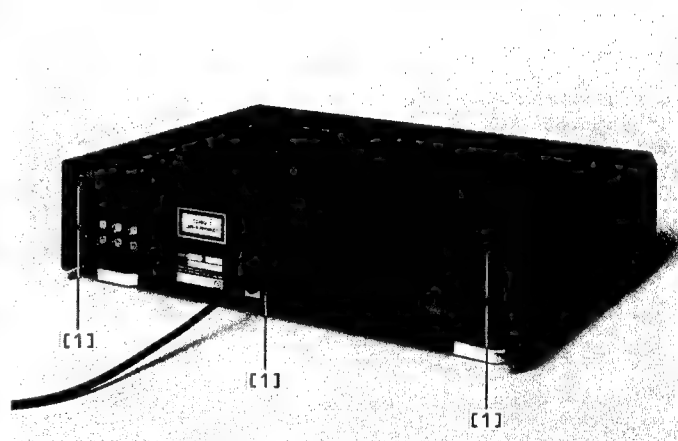
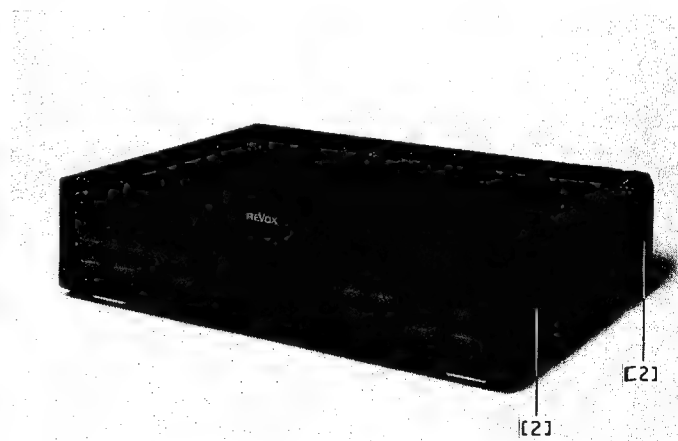


Fig. 2.2



## 2.3 UNITÉ DE COMMANDE

-> fig. 2.3 / fig. 2.4

- Retirer le couvercle supérieur (section 2.2.1).
- Retirer les panneaux latéraux (section 2.2.2).
- Depuis le dessous de l'appareil:  
Desserrer 4 vis [3].
- Depuis le dessus de l'appareil:  
Desserrer 2 vis [4] avec rondelle élastique et ressort de contact de masse.  
Desserrer 2 vis [5].
- Soulever l'unité de commande du boîtier en tirant vers l'avant.
- Défaire les connexions de câbles:
  - câble [6] KEYBOARD LEFT -> MICROPROCESSOR PCB
  - câble [7] KEYBOARD RIGHT -> MICROPROCESSOR PCB
  - câble [8] LC-DISPLAY -> MICROPROCESSOR PCB
  - câble [9] prise casque -> DECODER PCB (B226-S)

### 2.3.1 Affichage LC

-> fig. 2.4

- Retirer l'unité de commande (section 2.3).
- Sortir de chaque côté une clavette [10] en forçant suffisamment et sortir l'affichage LC de l'unité de commande.

### 2.3.2 Keyboard Print - contacts - touches

-> fig. 2.4 / fig. 2.5

- Retirer l'unité de commande (section 2.3).
- Desserrer 2 vis [11] sur chacune des platines de clavier.
- Sortir les clavettes l'une après l'autre en commençant sur un côté de leurs positions d'encliquetage tout en soulevant soigneusement la platine de clavier (Keyboard-Print) [12].

#### Attention:

- Eviter de toucher les contacts dorés.
- Ne pas retourner l'unité de commande: Les touches pourraient tomber.

Une fois que le Keyboard-Print [12] est démonté, Les contacts [13] et touches [14] peuvent être retirés vers le haut. Les touches [15] de la rangée supérieure avec les calottes en alu peuvent être sorties en avant en pressant légèrement.

#### Indications de montage:

- Avant le montage, nettoyer les surfaces de contact du clavier et de la membrane de commutation, l'affichage et la fenêtre d'affichage au moyen d'un chiffon propre et non pelucheux.
- Avant d'installer le Keyboard-Print, orienter avec précision les contacts dans les broches de centrage et entre les clavettes.
- Veiller à ce que toutes les clavettes s'accrochent sur la platine.

### 2.3.3 Prise casque (B226-S)

- Retirer l'unité de commande (section 2.3).
- Retirer le ressort de sûreté en bronze.
- Sortir les clavettes et tirer la prise de son support.

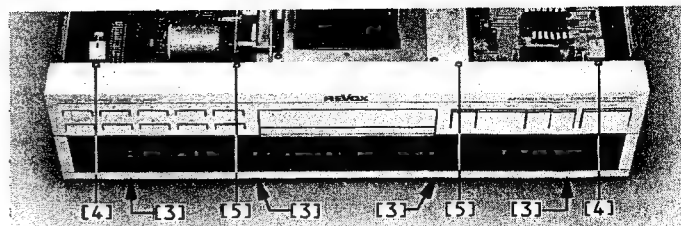


Fig. 2.3

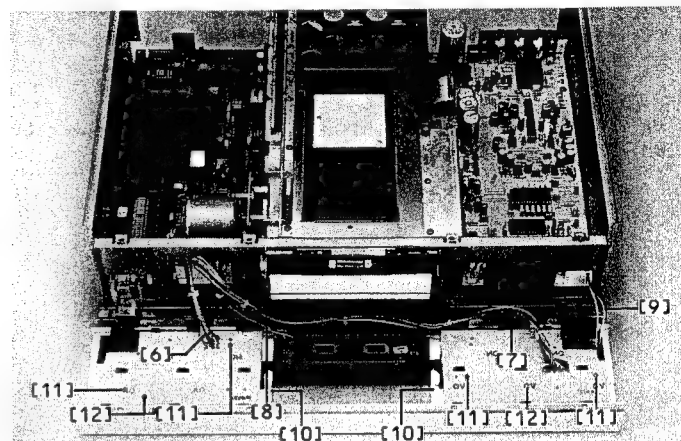


Fig. 2.4

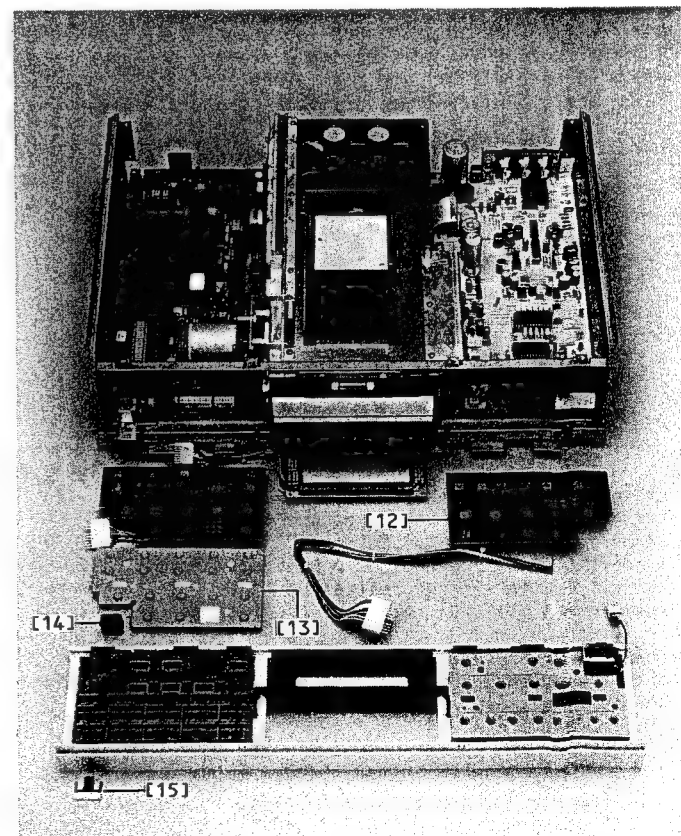


Fig. 2.5

## 2.4. MÉCANISME

### 2.4.1 Remplacement du mécanisme

→ fig. 2.6

- Déposer la plaque de recouvrement supérieure (paragraphe 2.2.1).
- Sortir le tiroir à disque.
- Libérer les câbles [17] (Fig. 2.6).
- Retourner l'appareil.
- Dévisser 4 vis [18] et déposer avec précaution le mécanisme et sa corbeille. Le mécanisme peut reposer dans sa position de travail sans dommage.
- Séparer les câbles de raccordement [17].
- Dévisser les 4 vis [19] du support du deuxième mécanisme et procéder à l'échange des mécanismes.

#### Indication de montage:

- Veiller à ajuster le mécanisme si le CD frotte contre le boîtier du tiroir.

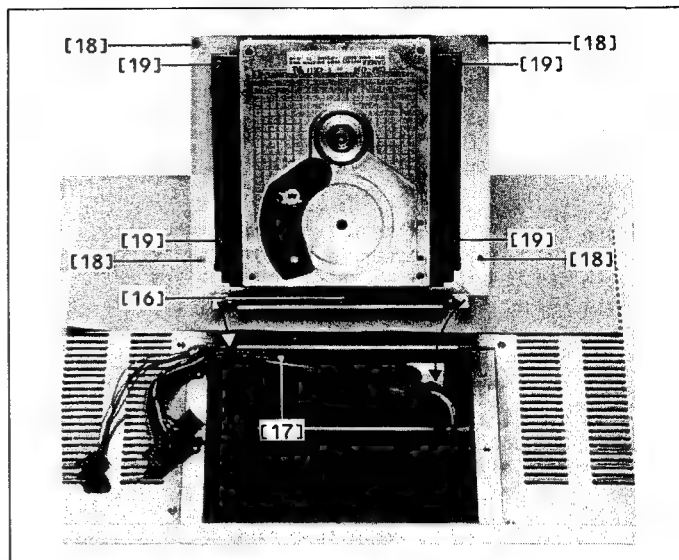


Fig. 2.6

### 2.4.2 Tiroir CD

→ fig. 2.7

- Ne pas retirer le mécanisme et le panier! Laisser toujours au moins le panier sur le boîtier démonté du tiroir (stabilité mécanique; le mécanisme du tiroir a été réglé à l'usine avec des tolérances serrées).
- Retirer le MICROPROCESSOR PCB (section 2.5.2).
- Retirer le DECODER PCB (section 2.5.3).
- Desserrer 6 vis [20]. On peut alors retirer de l'appareil vers l'arrière tout le tiroir CD avec le mécanisme.

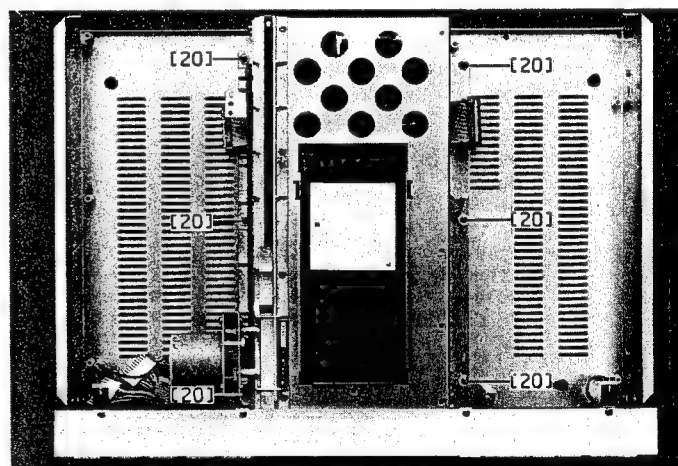


Fig. 2.7

### 2.4.3 Moteur du tiroir

→ fig. 2.8

- Retirer le couvercle supérieur (section 2.2.1).
- Retirer le panneau latéral gauche (section 2.2.2).
- Défaire la connexion à câble:
  - câble [21] MICROPROCESSOR PCB → moteur de tiroir
- Retirer le limiteur d'oscillation [22].
- Desserrer 3 vis [23]. Retirer le moteur de tiroir.

#### Indication de montage:

- Assurer à nouveau au Loctite le limiteur d'oscillation sur le filet.

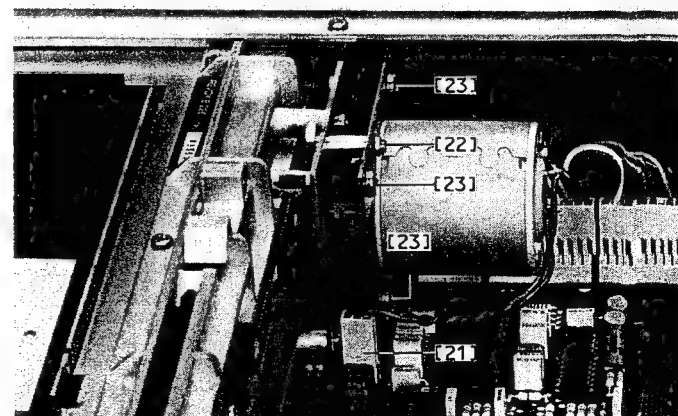


Fig. 2.8

## 2.5 ENSEMBLES ELECTRIQUES

### 2.5.1 Transformateur PCB 1.769.450/451/452

-> Fig. 2.9 / fig. 2.10

- Déposer la plaque de recouvrement supérieure (paragraphe 2.2.1).
- Débrancher le câble de raccordement [25] reliant le circuit du transformateur au circuit décodeur.
- Oter l'arrêt du câble secteur [27].
- Desserrer les 4 vis [28]; le Transformateur PCB peut être retiré par l'arrière de l'appareil.

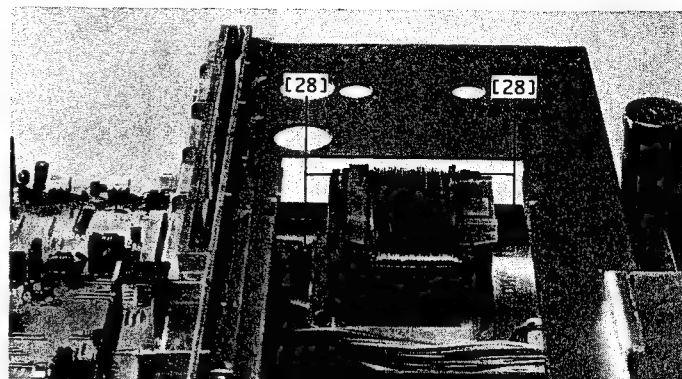


Fig. 2.9

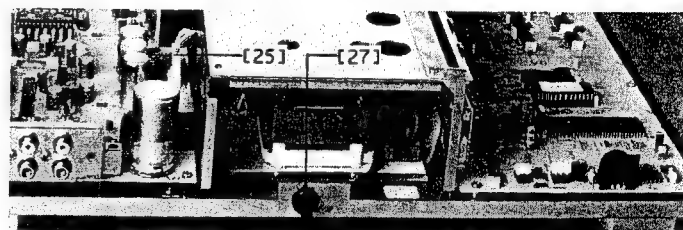


Fig. 2.10

### 2.5.2 MICROPROCESSOR PCB 1.769.402/404

-> fig. 2.11

- Retirer le couvercle supérieur (section 2.2.1).
- Défaire les connexions:
  - câble plat [29] MICROPROCESSOR PCB -> DECODER PCB
  - câble [30] MICROPROCESSOR PCB -> KEYBOARD LEFT
  - câble [31] MICROPROCESSOR PCB -> KEYBOARD RIGHT
  - câble [32] MICROPROCESSOR PCB -> LC-DISPLAY
  - câble [33] MICROPROCESSOR PCB -> moteur de tiroir
  - câble plat [34] MICROPROCESSOR PCB -> mécanisme (voir section 2.4.1).
- Desserrer 1 vis [35] et retirer la languette d'entraînement.
- Desserrer 4 vis [36] et retirer en arrière le MICROPROCESSOR PCB d'environ 10 mm.
- Poser le câble plat [34] MICROPROCESSOR PCB -> mécanisme à plat sur la platine après l'avoir fait passer par l'ouverture du boîtier du tiroir.
- Retirer avec soin le MICROPROCESSOR PCB vers l'arrière de l'appareil jusqu'à ce que l'encoche [37] soit à la hauteur du panneau arrière du boîtier.
- On peut alors poser la platine verticalement et la retirer de l'appareil.

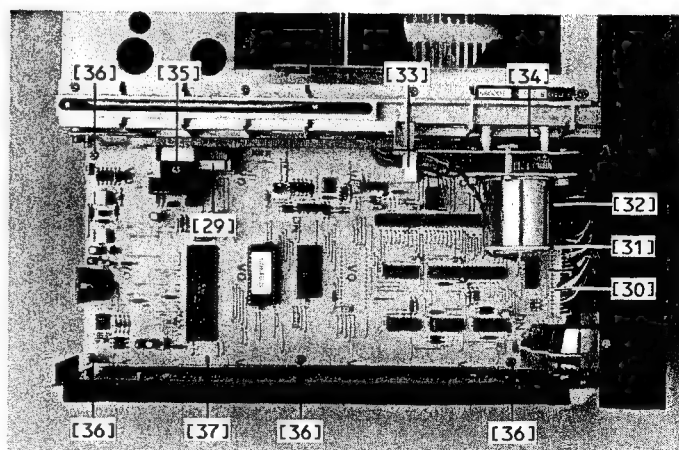


Fig. 2.11

### 2.5.3 DECODER PCB 1.769.421/422

-> fig. 2.9 / fig. 2.12

- Retirer le couvercle supérieur (section 2.2.1).
- Défaire les connexions:
  - câble plat [38] DECODER PCB -> MICROPROCESSOR PCB
  - câble [25] transformateur -> DECODER PCB
  - câble [39] DECODER PCB -> prise casque B226-S
  - câble [40] DECODER PCB -> ILLUMINATION PCB B126
- Desserrer 8 vis [41] et retirer le DECODER PCB de l'appareil vers le haut.

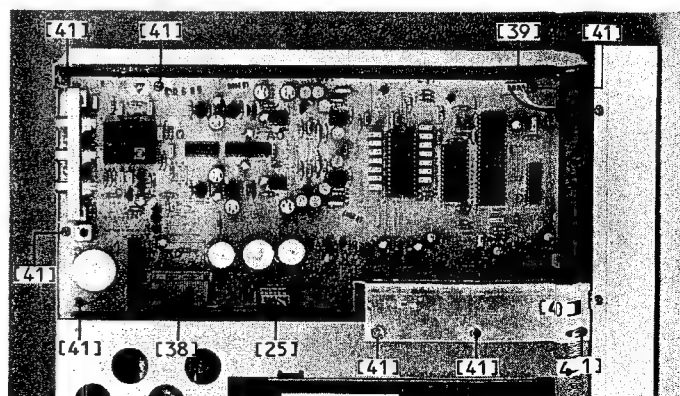


Fig. 2.12



## 2.5.4 LC-DISPLAY PCB 1.769.255/455

-&gt; fig. 2.13

- Retirer le couvercle supérieur (section 2.2.1).
- Retirer les panneaux latéraux (section 2.2.2).
- Retirer l'unité de commande (section 2.3).
- Desserrer 3 vis [42] et soulever la platine en haut pour la retirer des guidages.

## Indication de montage:

- Nettoyer le LC-DISPLAY sans appuyer avec un chiffon sec et non pelucheux. Remonter en évitant les poussières.

## 2.5.5 ILLUMINATION PCB 1.769.565 B126

-&gt; fig. 2.12 / fig. 2.13

- Retirer le couvercle supérieur (section 2.2.1).
- Retirer les panneaux latéraux (section 2.2.2).
- Retirer l'unité de commande (section 2.3).
- Détacher la connexion [40] ILLUMINATION PCB -> DECODER PCB.
- Desserrer 2 vis [43].

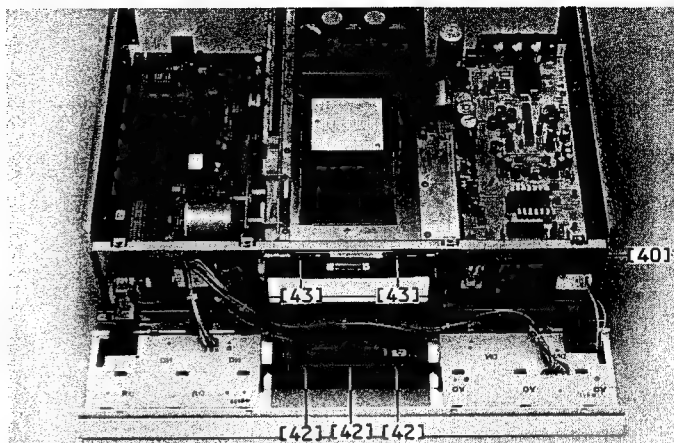


Fig. 2.13

## 2.5.6 SERVO PCB

-&gt; fig. 2.14 / fig. 2.15

- Passer Le chapitre 2.4.1.
- Poser Le mécanisme uniquement sur le champ, jamais sur l'axe du moteur ou du système optique !
- Maintenir d'une main le mécanisme et dévisser de l'autre les 4 vis [44].  
(Outillage spécial -> paragraphe 2.1.1).
- Débrancher les deux câbles de raccordement [45] et [46].

## 2.5.7 Fusible primaire

- Retirer le couvercle supérieur (section 2.1.1).
- Le fusible primaire est accessible depuis le haut.  
Type de fusible:  
110 VAC = T 400 mA/250 V (SLOW)  
220/240 VAC = T 200 mA/250 V (SLOW)

## Indication de montage:

- Après un remplacement du fusible, il faut absolument monter à nouveau la protection en matière synthétique du fusible.

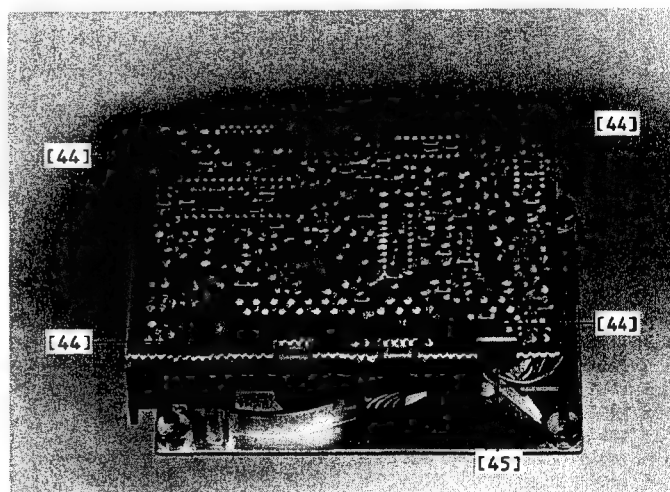


Fig. 2.14

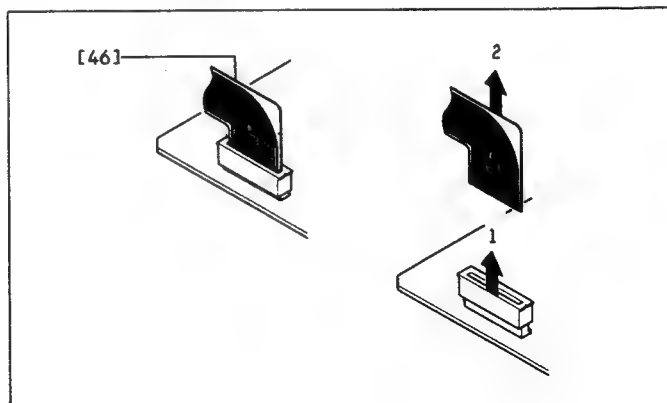


Fig. 2.15

### 3. DESCRIPTION DU FONCTIONNEMENT

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## 3.1 DECODER PCB 1.769.421/422

Le DECODER PCB porte les circuits suivants:

- Stabilisation des tensions d'alimentation.
- Traitement numérique des signaux.
- Filtrage numérique.
- Conversion numérique/analogique.
- Réglage de niveau et amplification pour casque.

## 3.1.1 Stabilisation des tensions d'alimentation

-> fig. 3.1

Les tensions d'alimentation (+5 V, -5 V, +5 VSTBY, -10 VSTBY, +12 V, -15 V) sont stabilisées par des régulateurs de tension (IC1 ... IC5). Les tensions d'alimentation +10 V et -10 V pour le moteur de disque sont prélevées avant les stabilisateurs 5 V.

Les tensions +5 VSTBY et -10 VSTBY sont présentes également à l'état hors tension. Elles alimentent le système microprocesseur et le récepteur IR en service de veille (Standby). Toutes les autres tensions d'alimentation sont enclenchées et déclenchées par le microprocesseur avec le signal PSON. Pour l'enclenchement, le microprocesseur met le signal PSON à +5 V. Les transistors Q4, Q3 et Q2 sont conducteurs, les transistors série Q1, Q5, Q6 et Q7 sont également conducteurs.

Les diodes D6, D8, D14 et D16 empêchent à la coupure du courant le changement de polarité des tensions d'alimentation.

Le signal SENSE formé par D1, D2, R22 et C1 surveille la tension secondaire du transformateur. Si ce signal tombe au-dessous de 4,3 V (panne de réseau), les transistors Q11 et Q13 conduisent, les transistors Q14 et Q15 sont bloqués, le relais K1 retombe et court-circuite les sorties audio à la masse (MUTE).

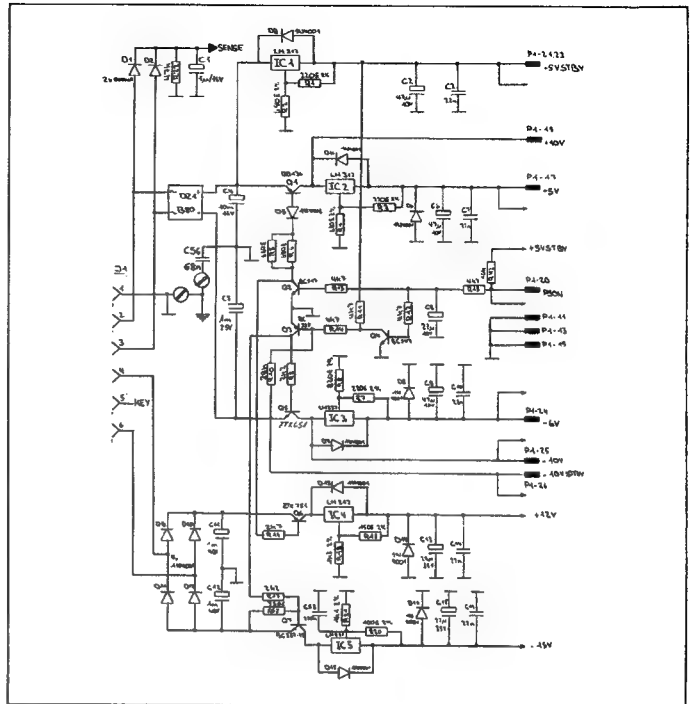


Fig. 3.1

## 3.1.2 Traitement numérique des signaux

-> fig. 3.2

Le signal HF filtré par un passe-bande (R45, C34, C35) est partagé par IC8 en données audio et sous-code. Un PLL intégré (R36, R49, R53, R54, C24, C25, Q16) régénère l'horloge pour les données audio.

IC8 assure l'identification d'erreur et la correction d'erreurs, la RAM (IC9) sert de mémoire intermédiaire.

Les données de sous-code (QDA, QRA, QCL) et le Word Select (SWAB/SSM) sont appliqués au microprocesseur. Le signal DEEM reconnaît un disque avec préaccentuation et commute en conséquence l'affaiblissement des aigus des amplificateurs analogiques.

## 3.1.3 Filtrage numérique

-> fig. 3.2

IC10 contient, outre la base de temps principale (Y1, 11,2896 MHz), des circuits d'interpolation linéaire de jusqu'à 8 valeurs de lecture incorrigibles, de l'affaiblissement de niveau et du filtrage numérique.

A partir des données de IC8 (SDAB, SCAB, EFAB, DAAB, CLAB, WSAB et XSYS) il est généré le signal de sortie sériel I<sup>2</sup>S (DABD, CLBD, WSBD) et le signal de sortie numérique (DOBM).

Grâce à une résolution de 16 bits avec suréchantillonnage quadruple suivi d'un filtrage numérique, on obtient un affaiblissement efficace des fréquences perturbatrices au-dessus de 20 kHz.

Le microprocesseur affaiblit le signal de sortie de 12 dB avec le signal ATSB ("L" actif) pendant la recherche. Avec le signal MUSB ("L" actif) la sortie est coupée lentement (soft muting).

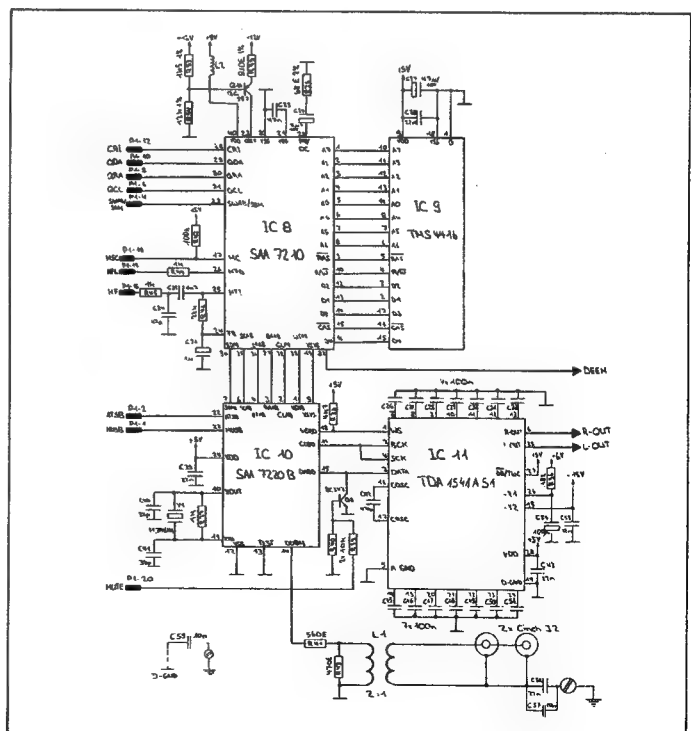


Fig. 3.2

### 3.1.4 Conversion numérique/analogique

-> fig. 3.2

IC11 décode le courant binaire sériel I<sup>2</sup>S (DATA), arrange les mots de 16 bits par canal et convertit les données des canaux gauche et droit simultanément en valeurs analogiques (pas de multiplex dans le temps). Les sorties analogiques (R-OUT, L-OUT) passent par un filtre passe-bas (Bessel) linéaire en phase avec caractéristique commutable (signal DEEM, pour CD avec/sans pré-emphasis) vers l'étage d'attaque de ligne.

### 3.1.5 Réglage du niveau et amplification casque (B226-S)

-> fig. 3.3

Les consignes de commande de volume qui sont sorties par le microprocesseur sur la ligne de données sont enregistrées en mémoire intermédiaire dans IC6 (registre à décalage / Latch) et commandent parallèlement un double convertisseur numérique/analogique (IC7). Les sorties analogiques servent d'atténuateurs avant les amplificateurs opérationnels (IC102, IC202), dont le gain est fixe. Pour les applications spéciales, la tension de sortie maximale fixe (2 V<sub>eff</sub>) peut être augmentée. Pour cela, il faut augmenter la résistance R108 (resp. R208). Le rapport Rancien à Rnouveau donne la mesure de l'augmentation du gain (par ex. R108 = 24 K $\Omega$  -> +6 dB); la modulation maximale de l'amplificateur opérationnel doit être prise en considération (Clipping!). Afin d'éviter des claquements à l'enclenchement et au déclenchement, toutes les sorties sont court-circuitées par le relais K1 à la masse à l'état coupé. Le microprocesseur commande le relais avec le signal PS0N. A l'enclenchement, PS0N devient "H" et Q12 et Q13 sont coupés. Le condensateur C19 se charge lentement à travers R27 et, après 2 secondes environ, Q14 et Q15 conduisent, le relais K1 attire. A la coupure, PS0N devient "L", Q12 et Q13 conduisent, le condensateur C19 se décharge, Q14 et Q15 sont coupés et le relais K1 retombe immédiatement.

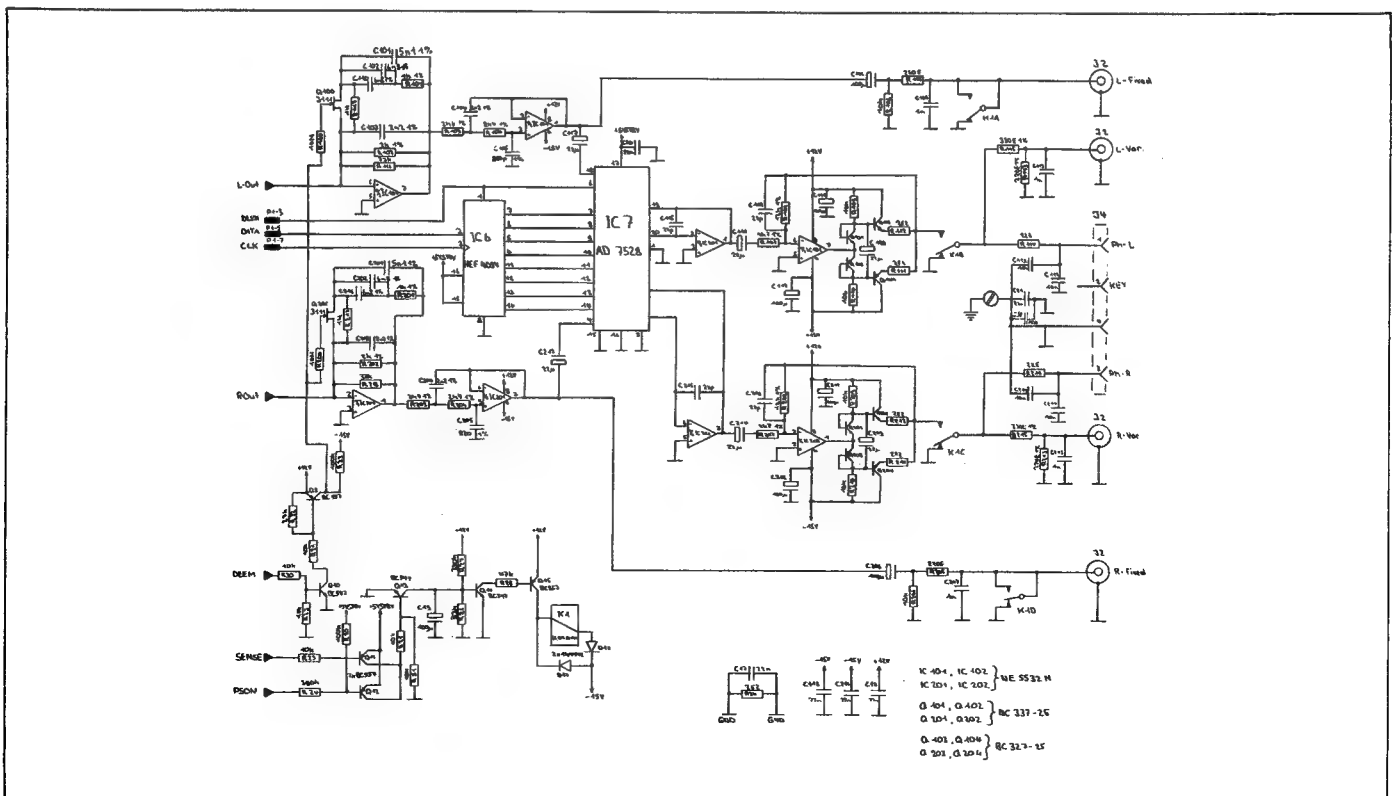


Fig. 3.3

### 3.2 MICROPROCESSOR PCB 1.769.402/404

Le MICROPROCESSOR PCB porte les circuits suivants:

- Microprocesseur
- Commande de moteur de tiroir
- Récepteur IR
- Serial Link

#### 3.2.1 Microprocesseur

→ fig. 3.4

Le microprocesseur utilisé est un MC6303Y (IC18). Les mémoires externes sont IC16 (ROM 326K x 8) et IC15 (RAM 2K x 8). Les contrôleurs d'adresses (IC11, IC8, IC12) décodent ensemble les cinq bits de valeur supérieure (A10 ... A15) du bus d'adresses et génèrent les signaux Select (SEL-RAM, SEL-ROM, SEL-PORT, EPORT1 ... EPORT4). IC9 réalise un circuit Reset et initialise le microprocesseur avec un RESET lorsque la tension de réseau est appliquée.

Tout le système microprocesseur et les I/O-Ports sont toujours alimentés par la tension +5 VSTBY, même lorsque l'appareil est mis hors tension avec la touche POWER. Il est ainsi possible au microprocesseur d'enclencher et de déclencher les tensions d'alimentation des autres ensembles avec le signal PS0N.

#### I/O Ports internes

En pressant la touche "LOAD", on a à la broche 8 une impulsion NMI initialisant le microprocesseur, de sorte que le système processeur peut être réinitialisé par la touche LOAD en cas d'état indéfini.

Par les Ports BIBUSIN et BIBUSOUT, le microprocesseur peut communiquer avec un appareil REVOX B200 Controller ou un B206 - Transceiver raccordé à la prise SERIAL LINK.

Les signaux DRAW-B (entré) et DRAW-F (sorti) indiquent la position du tiroir CD. Avec les signaux DRAWIN et DRAWOUT, le microprocesseur entre le tiroir ou le sort respectivement. Le signal DRAWSense surveille du courant du moteur de tiroir, si le courant est trop élevé (obstacle) le microprocesseur change le sens de rotation du moteur. Avec le signal RE-FIL, le microprocesseur compte les pistes pendant la recherche et, le signal TL-LAT est "L" lorsque le lecteur à laser n'est plus dans la piste.

Par les entrées QDATA, QCL, QRA et SWAB/SSM, le microprocesseur lit le sous-code du disque et, par la sortie MUTE, il commute pour les disques CD-ROM les sorties analogiques en position coupée. La sortie numérique reste activée, des données de disques CD-ROM peuvent être sorties par elle.

#### I/O Ports externes

Par les sorties P0 ... P5 et les entrées P10 ... P14 (IC15, IC7) le microprocesseur interroge le clavier. Les signaux RE, RP et TL renseignent sur la position du lecteur à Laser. Avec SI, le microprocesseur provoque une procédure de démarrage, la diode à laser et le circuit de réglage focal sont activés.

Les sorties B0 ... B3 (IC14) commandent le circuit de réglage radial, le signal MUSB commute en recherche toutes les sorties à zéro et ATSB affaiblit le niveau de sortie de 12 dB.

IR-REC est commuté sur "H" pour 1 seconde environ lorsque le microprocesseur a reçu une instruction IR.

IC13 attaque par ses sorties (DLEN-1, DLEN-2, DATA et CLK) les composants d'attaque de l'affichage LC.

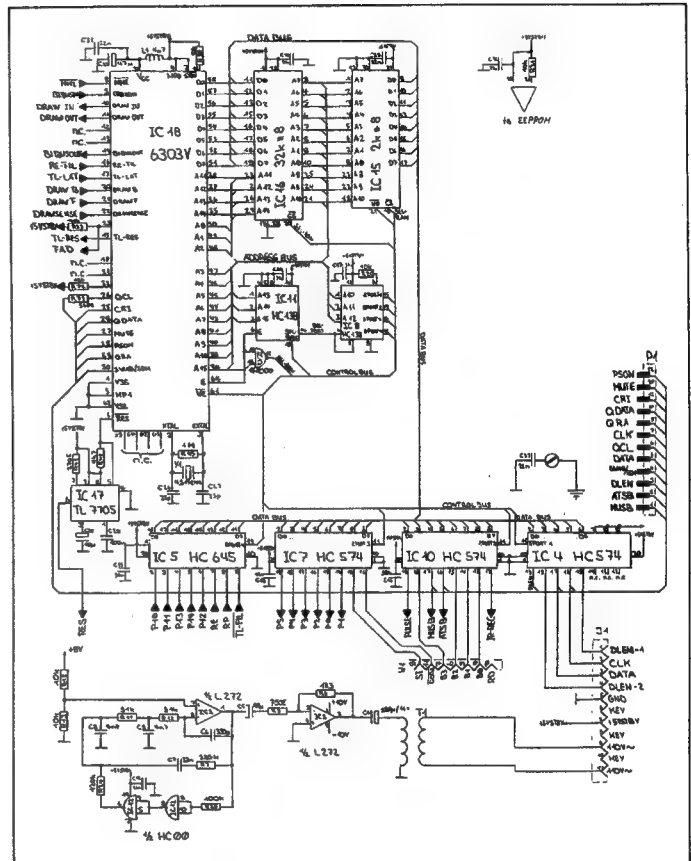


Fig. 3.4

### 3.2.2 Moteur du tiroir

-> fig. 3.5

L'amplificateur du moteur du tiroir (IC14, Q1, Q2) est commandé par le microprocesseur avec les signaux DRAWIN et DRAWOUT. Si le tiroir se bloque pendant l'entrée ou la sortie, le courant de moteur augmente de même que la tension de moteur. Le signal DRAW SENSE devient alors "L" et le microprocesseur change le sens du mouvement du tiroir.

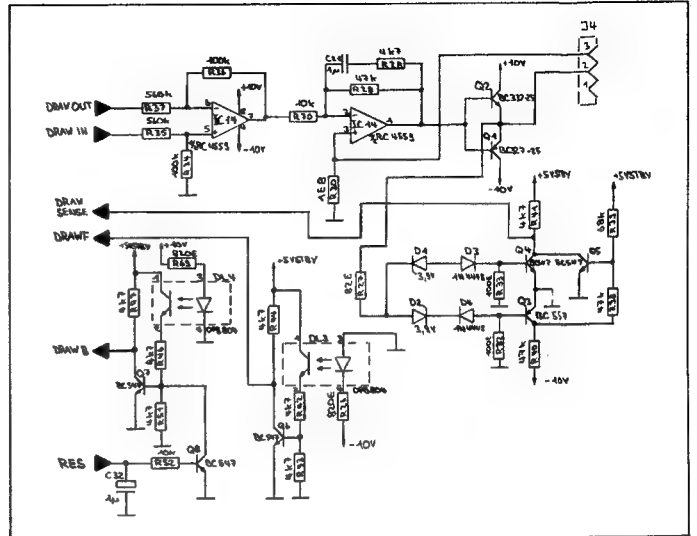


Fig. 3.5

### 3.2.3 Récepteur IR

-> fig. 3.6

Les instructions IR reçues par la diode réceptrice IR (DP1) sont décodées dans le décodeur IC1 et envoyées au microprocesseur par la ligne BIBUSIN. Le microprocesseur quitte la réception par IR-REC, la LED rouge (DL1) dans la fenêtre de récepteur IR s'allume pendant 1 seconde environ.

### 3.2.4 Serial Link

-> fig. 3.6

Par la prise SERIAL LINK, Les instructions de commande peuvent être reçues et les signaux en retour émis. Ici, on peut raccorder les appareils REVOX B203 Audio/video Controller et B206 Transceiver.

Le raccord 3 de la prise porte le signal sériel de données, le raccord 1 la masse et le raccord 5 la tension d'alimentation +5 VSTBY.

Le récepteur IR interne peut être coupé par une tension de 5 V entre les raccords 4 et 2. Ceci peut également se faire avec la tension présente sur la prise: relier 1 à 2 et 4 à 5.

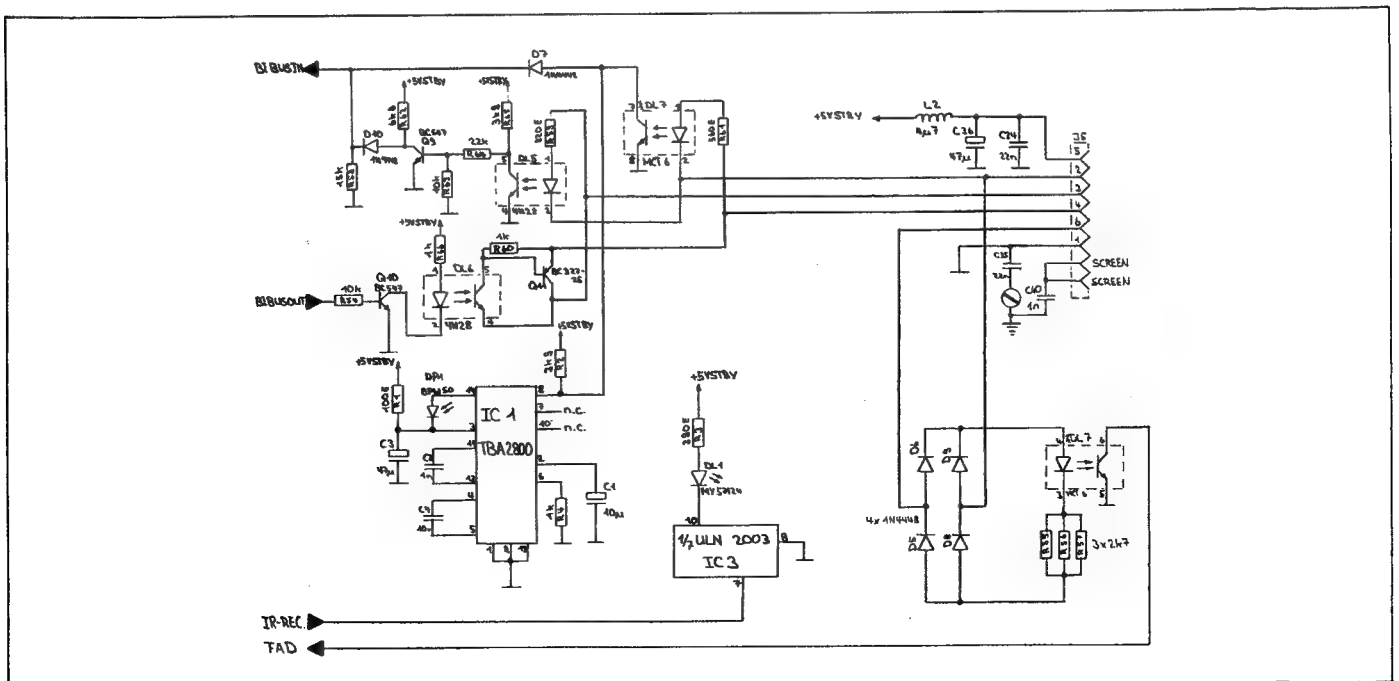


Fig. 3.6

## 3.3 SERVO PCB

-&gt; fig. 3.7

Le SERVO PCB porte les circuits suivants:

- Commande de courant Laser
- Processeur de signaux
- Réglage focal
- Réglage radial
- Contrôle automatique de gain (CAG)
- Réglage du moteur de disque

## 3.3.1 Commande du courant Laser

Le signal LO commande par le transistor 6108 le courant circulant à travers la diode laser. La diode de moniteur donne une tension (LM) proportionnelle à l'intensité du laser pour le circuit de réglage du courant laser dans IC 6101 (TDA 5708). Le potentiomètre R 3106 permet de régler l'intensité du laser.

## 3.3.2 Processeur de signaux

Le processeur de signaux IC 6101 (TDA 5708) forme à partir des quatre courants des photodiodes (D1 ... D4) les signaux d'erreur radiale RE1 et RE2 pour le réglage d'erreur radiale dans IC 6102 (TDA 5709), de même que les signaux de réglage FE et FE<sub>LAG</sub> pour le réglage focal.

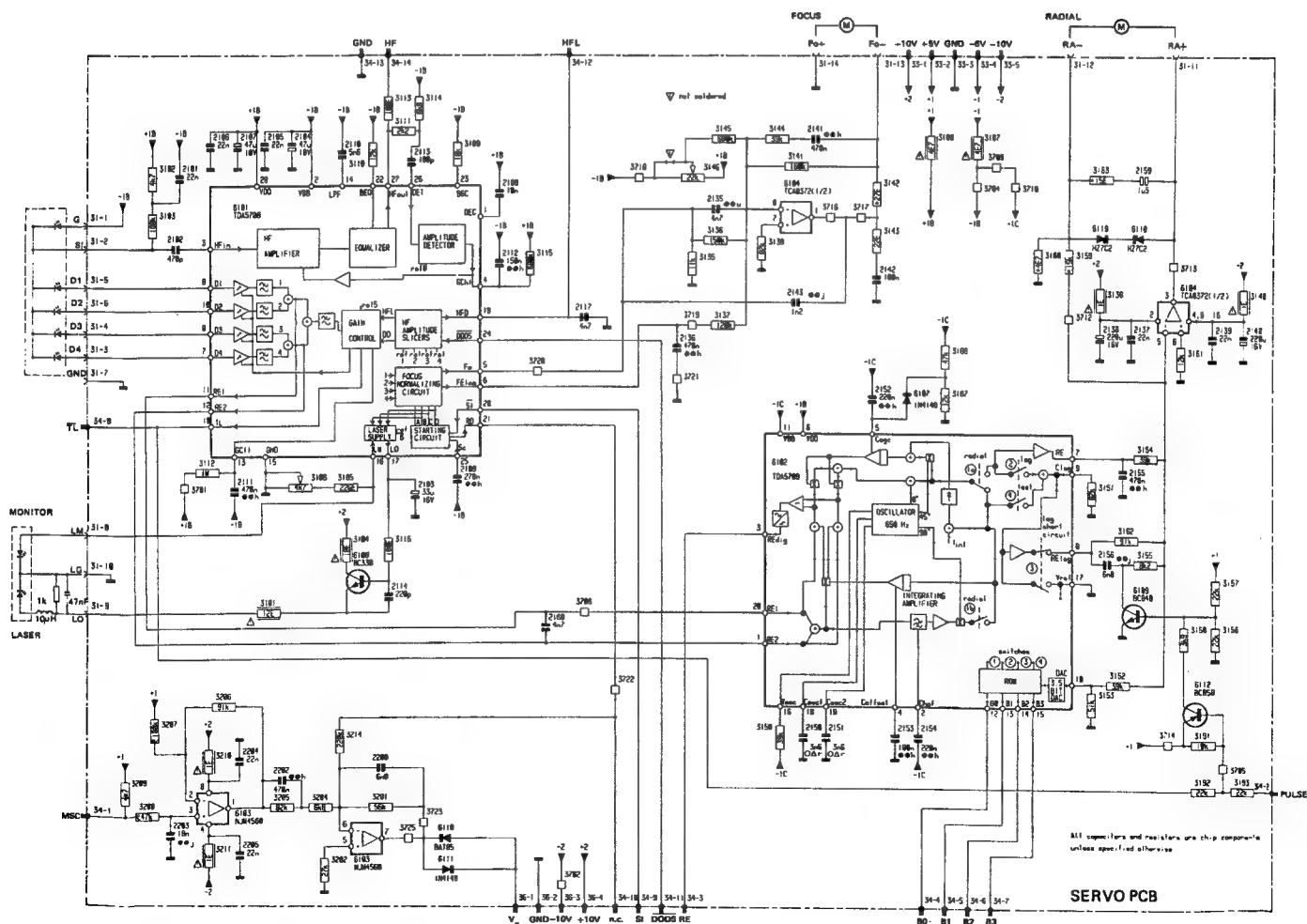


Fig. 3.7

### 3.3.3 Réglage focal

Les signaux de réglage focal formés dans IC 6101 (TDA 5708) à partir des courants des diodes réceptrices D1 à D4, FE et FE<sub>LAG</sub>, sont amplifiés par IC 6104 Pin 1,7,8 (TCA 0372) qui sert d'amplificateur LEAD/LAG et commandent l'entraînement de la lentille de convergence.

### 3.3.4 Réglage radial

Afin de pouvoir suivre la piste sur le disque, le lecteur à laser est monté dans un bras pivotant dont l'entraînement est conçu de manière analogue à celui d'un instrument à bobine mobile.

Les deux signaux d'erreur radiale RE1 et RE2 sont amplifiés et évalués dans IC 6102 (TDA 5709). L'amplificateur de puissance LEAD/LAG IC 6104 Pin 3,5,6 (TCA0372) commande le moteur radial.

### 3.3.5 Contrôle automatique de gain (CAG)

Un circuit dans IC 6102 (TDA 5709) maintient constante la bande passante et ainsi le gain du circuit de réglage radial.

Un signal sinusoïdal 650 Hz (C 2150, C 2151, R 3150) est injecté dans le circuit de réglage radial. Si l'amplification change, la phase du signal de retour change également par rapport au signal injecté. Un détecteur intégré de phase compare les deux signaux et détermine le facteur d'amplification.

### 3.3.6 Réglage du moteur du disque

Afin de maintenir aussi constant que possible le courant de données du disque compact, la vitesse de rotation de celui-ci est réglée. En fonction de la position du lecteur à laser, la vitesse périphérique est réglée. Le signal de correction de vitesse MSC est formé dans le décodeur (IC8 sur DECODER PCB 1.769.421/422). Ce signal à modulation de largeur d'impulsions a en mode de reproduction une durée d'enclenchement d'environ 50%, pendant la phase de démarrage (accélération du disque) 98% pendant 0,2 s environ. Dans IC 6103, le signal est formé en signal de réglage du moteur du disque VC dans un amplificateur.

## 4. INSTRUCTIONS DE REGLAGE

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## 4.1 GÉNÉRALITÉS

ATTENTION: Danger d'électrocution lorsque l'appareil est ouvert!  
Des parties de l'appareil sont portées à la tension du réseau.

Les modules livrés par STUDER REVOX peuvent être montés dans l'appareil sans réglage.

## 4.1.1 Outillage de mesure nécessaires

- Oscilloscope
- Voltmètre numérique
- CD test no. 3 no. comm. 46240
- CD test no. 5A no. comm. 46241
- CD de verre pour réglages optiques no. comm. 46242
- voltmètre BF
- distorsiomètre automatique
- filtre de mesure (pour mesure du facteur de distorsion)
- filtre passe-bas 30 kHz
- filtre avec courbe de pondération "A"
- tournevis de réglage
- équipement de poste de travail "ESE" no. comm. 46200

## 4.2 POINTS DE MESURE

## 4.2.1 Préparatifs

- Retirer la fiche du réseau
- Retirer le couvercle supérieur (section 2.2.1).
- Raccorder l'appareil à nouveau au réseau.

## Désignations:

Les tableaux suivants indiquent les noms des signaux ou les raccords pour les composants. Légende:

C.Q1 = collecteur du transistor Q1

B.Q1 = base du transistor Q1

E.Q1 = émetteur du transistor Q1

R111/112 = potentiel commun des résistances R111 et R112

## 4.2.2 DECODER PCB 1.769.421/422

|    | Name     | POWER ON<br>Umin. | Ripple | POWER OFF<br>Umin. | Ripple |
|----|----------|-------------------|--------|--------------------|--------|
| 1  | SENSE    | + 9.2 V           | 1.4 V  | +11.2 V            | 2.0 V  |
| 2  | PSON     | + 4.4 V           |        | 0.0 V              |        |
| 3  | DZ1 (+)  | +10.4 V           | 0.4 V  | +13.2 V            | 0.1 V  |
| 4  | DZ1 (-)  | -11.4 V           | 0.6 V  | -15.8 V            |        |
| 5  | C.Q1     | + 9.9 V           | 0.5 V  | 0.0 V              |        |
| 6  | B.Q1     | + 9.2 V           | 0.5 V  | +13.0 V            | 0.1 V  |
| 7  | C.Q2     | 0.0 V             |        | +25.5 V            |        |
| 8  | B.Q2     | - 0.7 V           |        | 0.0 V              |        |
| 9  | C.Q3     | - 0.1 V           |        | -25.0 V            |        |
| 10 | B.Q3     | + 0.7 V           |        | + 0.9 V            |        |
| 11 | C.Q4     | 0.1 V             |        | + 3.0 V            |        |
| 12 | B.Q4     | + 0.7 V           |        | 0.0 V              |        |
| 13 | C.Q5     | -11.2 V           | 0.5 V  | + 0.2 V            |        |
| 14 | B.Q5     | -10.7 V           | 0.5 V  | -24.0 V            |        |
| 15 | E.Q6     | +16.5 V           | 2.1 V  | +22.5 V            |        |
| 16 | C.Q6     | +17.0 V           | 2.1 V  | + 0.5 V            |        |
| 17 | E.Q7     | -22.0 V           | 0.6 V  | -26.5 V            |        |
| 18 | C.Q7     | -21.5 V           | 0.6 V  | 0.0 V              |        |
| 19 | +5 VSTBY | + 5.2 V           |        | + 5.2 V            |        |
| 20 | +5 V     | + 5.2 V           |        | 0.0 V              |        |
| 21 | -5 V     | - 5.2 V           |        | 0.0 V              |        |
| 22 | +12 V    | +12.0 V           |        | 0.0 V              |        |
| 23 | -15 V    | -15.0 V           |        | 0.0 V              |        |

-> fig. 4.2

-> fig. 4.3

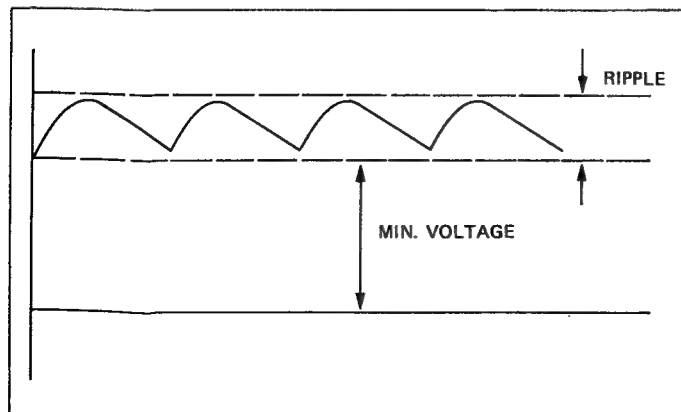


Fig. 4.2

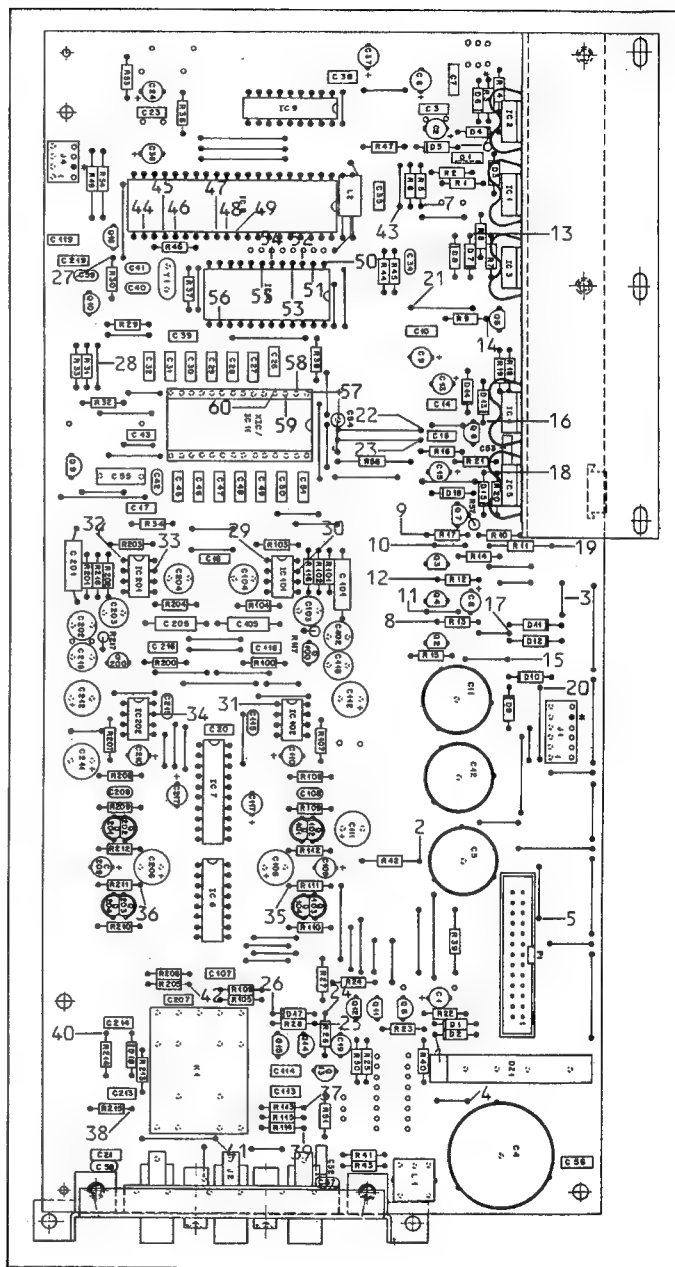


Fig. 4.1

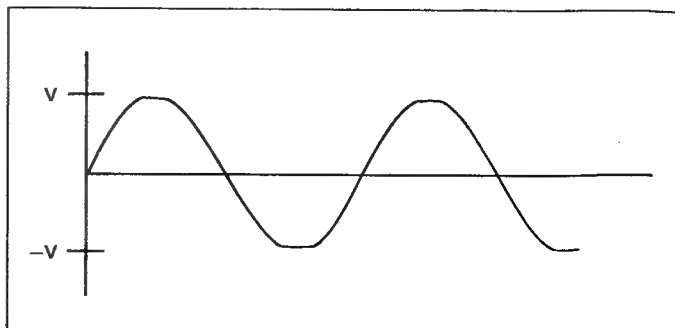


Fig. 4.3



|    | Name  | POWER ON | POWER OFF |
|----|-------|----------|-----------|
| 24 | C.Q13 | + 0.7 V  | 0.0 V     |
| 25 | C.Q14 | + 0.1 V  | 0.0 V     |
| 26 | C.Q15 | +12.0 V  | 0.0 V     |

|    | Name | PREEMPHASIS YES | PREEMPHASIS NO |
|----|------|-----------------|----------------|
| 27 | DEEM | + 4.0 V         | 0.0 V          |
| 28 | C.Q9 | +12.0 V         | -15.0 V        |

- Placer le CD test no. 3 et reproduire les pistes 4/8 (1 kHz, 0dB)
- Mesurer à l'oscilloscope.

|    | Name             | Unom.    | Umin.   | FREQUENCY        |
|----|------------------|----------|---------|------------------|
| 29 | IC 101:<br>pin 1 | 7.0 Vpp  | 1.0 Vpp | 1 kHz, sine-wave |
| 30 | pin 7            | 7.0 Vpp  | 1.0 Vpp | 1 kHz, sine-wave |
| 31 | IC 102:<br>pin 1 | 7.0 Vpp  |         | 1 kHz, sine-wave |
| 32 | IC 201:<br>pin 1 | 7.0 Vpp  | 1.0 Vpp | 1 kHz, sine-wave |
| 33 | pin 7            | 7.0 Vpp  | 1.0 Vpp | 1 kHz, sine-wave |
| 34 | IC 202:<br>pin 7 | 7.0 Vpp  |         | 1 kHz, sine-wave |
| 35 | R111/112         | 18.0 Vpp |         | 1 kHz, sine-wave |
| 36 | R211/212         | 18.0 Vpp |         | 1 kHz, sine-wave |
| 37 | L-VAR            | 7.0 Vpp  |         | 1 kHz, sine-wave |
| 38 | R-VAR            | 7.0 Vpp  |         | 1 kHz, sine-wave |
| 39 | PH-L             | 18.0 Vpp |         | 1 kHz, sine-wave |
| 40 | PH-R             | 18.0 Vpp |         | 1 kHz, sine-wave |
| 41 | L-FIXED          | 7.0 Vpp  |         | 1 kHz, sine-wave |
| 42 | R-FIXED          | 7.0 Vpp  |         | 1 kHz, sine-wave |

|    | Name   | Umin.       | REFER TO: |
|----|--------|-------------|-----------|
| 43 | MSC    |             | Fig. 4.5  |
| 44 | IC 8:  |             |           |
| 45 | pin 22 | + 2.6 V     |           |
| 46 | pin 24 | + 1.6 V     |           |
| 47 | pin 25 | DC: 1.6 V   |           |
| 48 | pin 29 | AC: 1.5 Vpp | Fig. 4.4  |
| 49 | pin 30 |             | Fig. 4.4  |
| 50 | pin 31 |             | Fig. 4.4  |
| 51 | IC 10: |             | Fig. 4.6  |
| 52 | pin 1  |             | Fig. 4.6  |
| 53 | pin 2  |             | Fig. 4.6  |
| 54 | pin 3  |             | Fig. 4.6  |
| 55 | pin 4  |             | Fig. 4.6  |
| 56 | pin 6  |             | Fig. 4.6  |
| 57 | pin 7  |             | Fig. 4.6  |
| 58 | pin 14 |             | Fig. 4.7  |
| 59 | IC 11: |             | Fig. 4.8  |
| 60 | pin 1  |             | Fig. 4.8  |
|    | pin 2  |             | Fig. 4.8  |
|    | pin 3  |             | Fig. 4.8  |
|    | pin 4  |             | Fig. 4.8  |

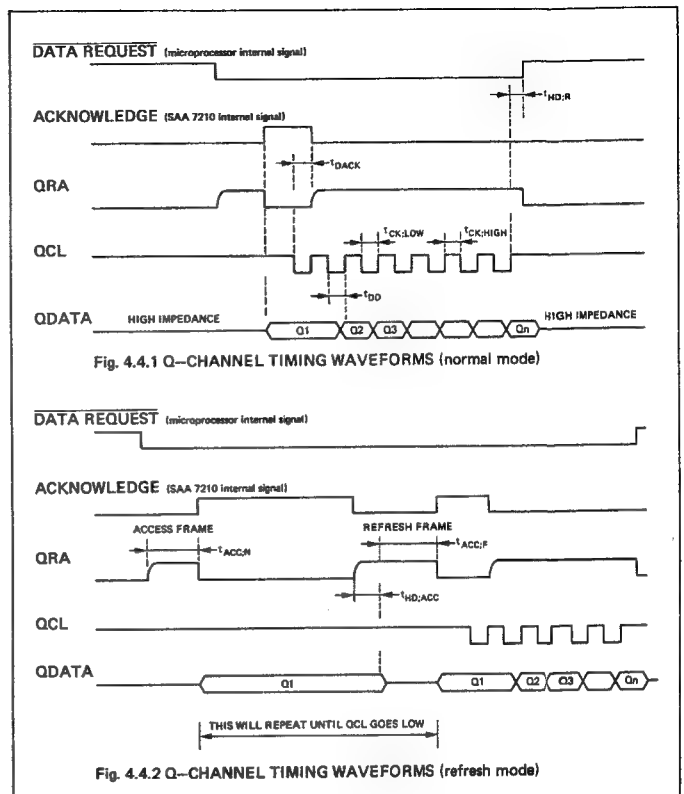


Fig. 4.4

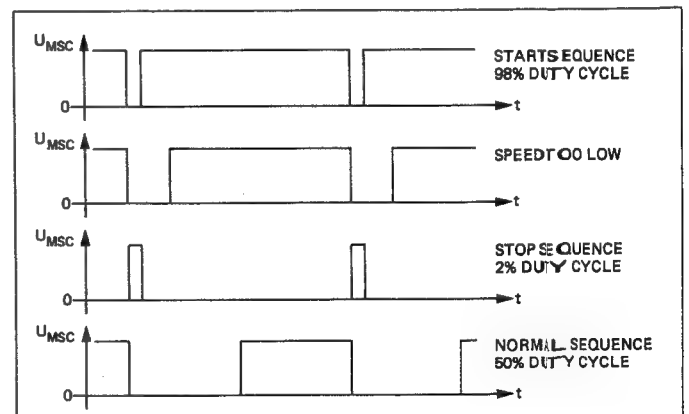


Fig. 4.5

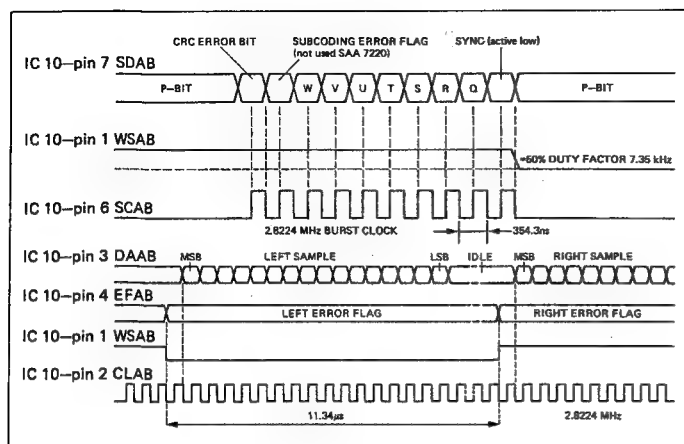


Fig. 4.6

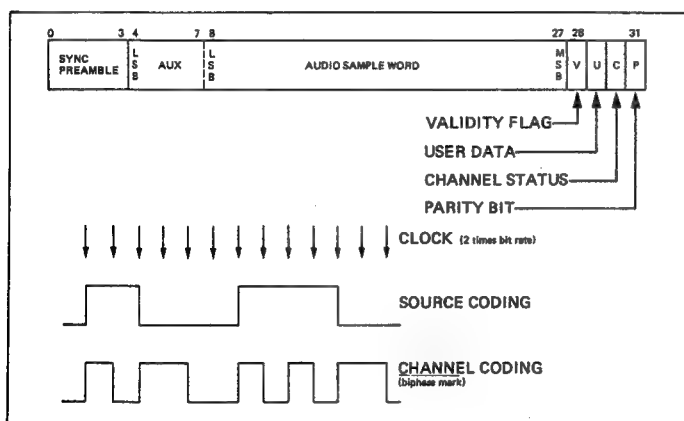


Fig. 4.7

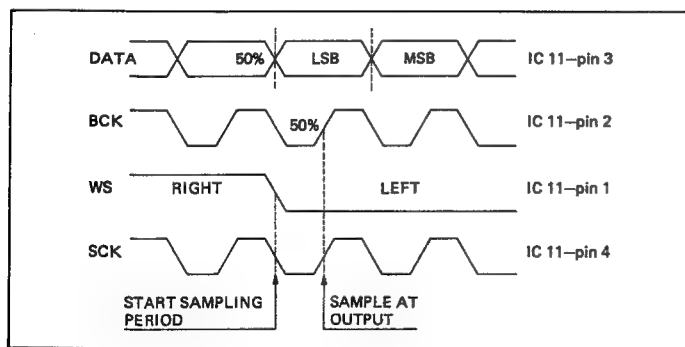


Fig. 4.8

## Procédure pour R52 (circuit décodeur)

-&gt; fig. 4.9...fig. 4.11

Les opérations décrites ici sont à effectuer sur les circuits suivants:

- B126 jusqu'au No de série 7815: 1.769.421.00
- B226-S jusqu'au No de série 101669: 1.769.422.00

## A effectuer:

- Souder deux socles 53.03.0218 sur le circuit.
- Souder sous le circuit imprimé, un condensateur C60 de 33pF, 59.34.2330 entre le point 33 (SWAB/SSM) de l'IC8 et la masse.

## A exécuter à froid:

- Placer le CD test No 5A.
- La valeur de la résistance Pull-up R52, se détermine à l'aide d'un réseau de résistances commutables, afin d'obtenir un angle positif de 55° de la plage de capture PLL.
- Connecter le commutateur rotatif S aux socles pour R52 en limitant la longueur du câble de liaison à 20 cm.
- Tourner le commutateur à droite, jusqu'à l'obtention des impulsions EFAB (point 36). Attendre 5 à 10 secondes entre chaque position.
- Lire sur l'échelle du commutateur la valeur pour la résistance R52.
- Contrôler avec le CD test No 5A (Track 9,17) si les impulsions EFAB ou "tocs" sont présents.

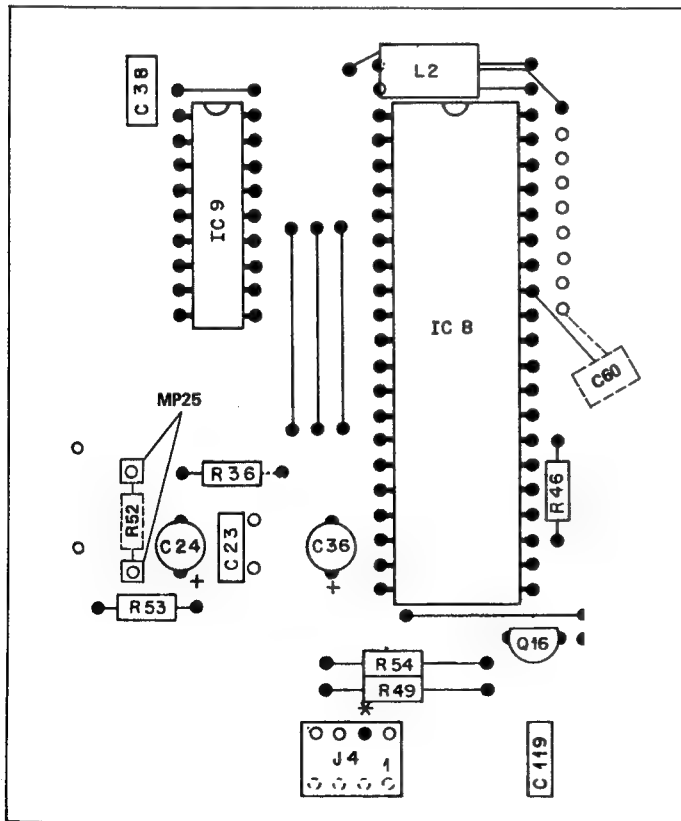


Fig. 4.9

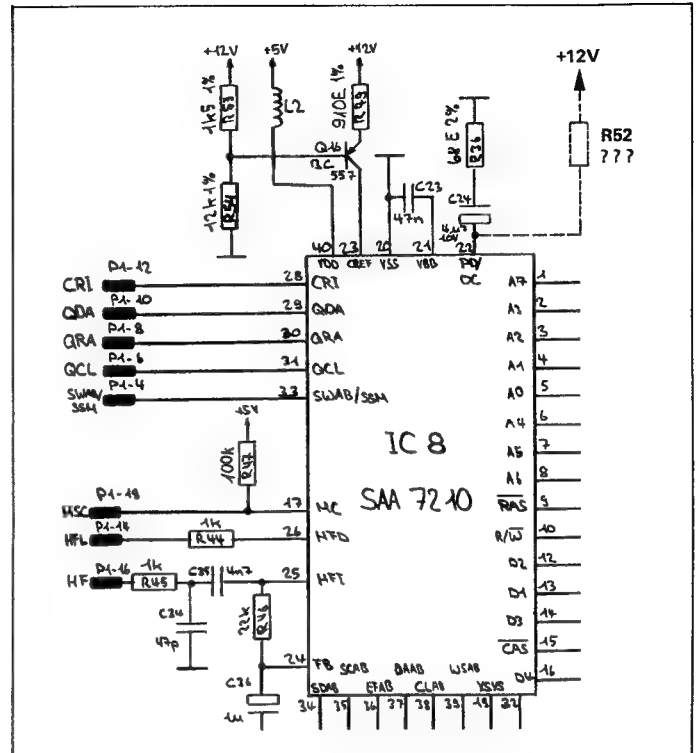


Fig. 4.10

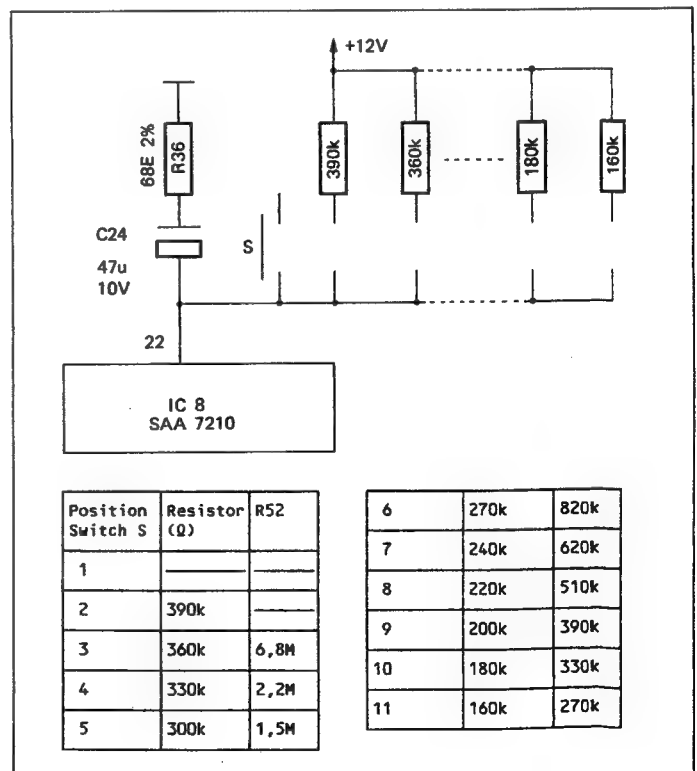


Fig. 4.11

## 4.2.3 MICROPROCESSOR PCB 1.769.402/404

■ Condition de mesure: mode de reproduction avec CD test no. 3, sauf indication contraire.

|    | Name             | SIGNAL | PLAY      | STOP    | POWER OFF |
|----|------------------|--------|-----------|---------|-----------|
| 1  | IC 6:<br>pin 1   | RE     | TTL 650Hz | + 5.0 V | 0.0 V     |
| 2  | pin 6            | RE-FIL | TTL 650Hz | 0.0 V   | + 5.0 V   |
| 3  | pin 9            | TL     | + 5.0 V   | + 5.0 V | 0.0 V     |
| 4  | IC 7:<br>pin 12  | DODS   | + 5.0 V   | + 5.0 V | + 5.0 V   |
| 5  | pin 13           | SI     | 0.0 V     | + 5.0 V | + 5.0 V   |
| 6  | IC 9:<br>pin 9   | TL-LAT | + 5.0 V   | 0.0 V   | + 5.0 V   |
| 7  | pin 10           | TL-RES | + 5.0 V   | + 5.0 V | + 5.0 V   |
| 8  | IC 10:<br>pin 13 | B0     | + 5.0 V   | 0.0 V   | 0.0 V     |
| 9  | pin 14           | B1     | + 5.0 V   | + 5.0 V | 0.0 V     |
| 10 | pin 15           | B2     | + 5.0 V   | + 5.0 V | 0.0 V     |
| 11 | pin 18           | B3     | 0.0 V     | 0.0 V   | 0.0 V     |

|    | Name            | DRAWER MOVES OUT | DRAWER MOVES IN |
|----|-----------------|------------------|-----------------|
| 12 | DRAW IN         | 0.0 V            | + 5.0 V         |
| 13 | DRAW OUT        | + 5.0 V          | 0.0 V           |
| 14 | IC 14:<br>pin 1 | - 4.3 V          | + 4.3 V         |
| 15 | pin 7           | + 0.9 V          | - 0.9 V         |
| 16 | E.Q1/Q2         | - 4.2 V          | + 4.2 V         |

|    | Name      | DRAWER BLOCKED | DRAWER UNBLOCKED |
|----|-----------|----------------|------------------|
| 17 | DRAWSENSE | 0.0 V          | + 5.0 V          |

|    | Name   | DRAWER POSITION: |         |         |
|----|--------|------------------|---------|---------|
|    |        | IN               | BETWEEN | OUT     |
| 18 | DRAW F | 0.0 V            | 0.0 V   | + 5.0 V |
| 19 | DRAW B | + 5.0 V          | 0.0 V   | 0.0 V   |

|    | Name            | Signal | NO KEY<br>PRESSED | CORRESPONDING<br>KEY PRESSED |
|----|-----------------|--------|-------------------|------------------------------|
| 20 | IC 5:<br>pin 2  | P10    | + 5.0 V           | TTL SIGNAL                   |
| 21 | pin 3           | P11    | + 5.0 V           | TTL SIGNAL                   |
| 22 | pin 6           | P12    | + 5.0 V           | TTL SIGNAL                   |
| 23 | pin 4           | P13    | + 5.0 V           | TTL SIGNAL                   |
| 24 | pin 5           | P14    | + 5.0 V           | TTL SIGNAL                   |
| 25 | IC 7:<br>pin 15 | P0     | + 5.0 V           | TTL SIGNAL                   |
| 26 | pin 14          | P1     | + 5.0 V           | TTL SIGNAL                   |
| 27 | pin 16          | P2     | + 5.0 V           | TTL SIGNAL                   |
| 28 | pin 17          | P3     | + 5.0 V           | TTL SIGNAL                   |
| 29 | pin 18          | P4     | + 5.0 V           | TTL SIGNAL                   |
| 30 | pin 19          | P5     | + 5.0 V           | TTL SIGNAL                   |

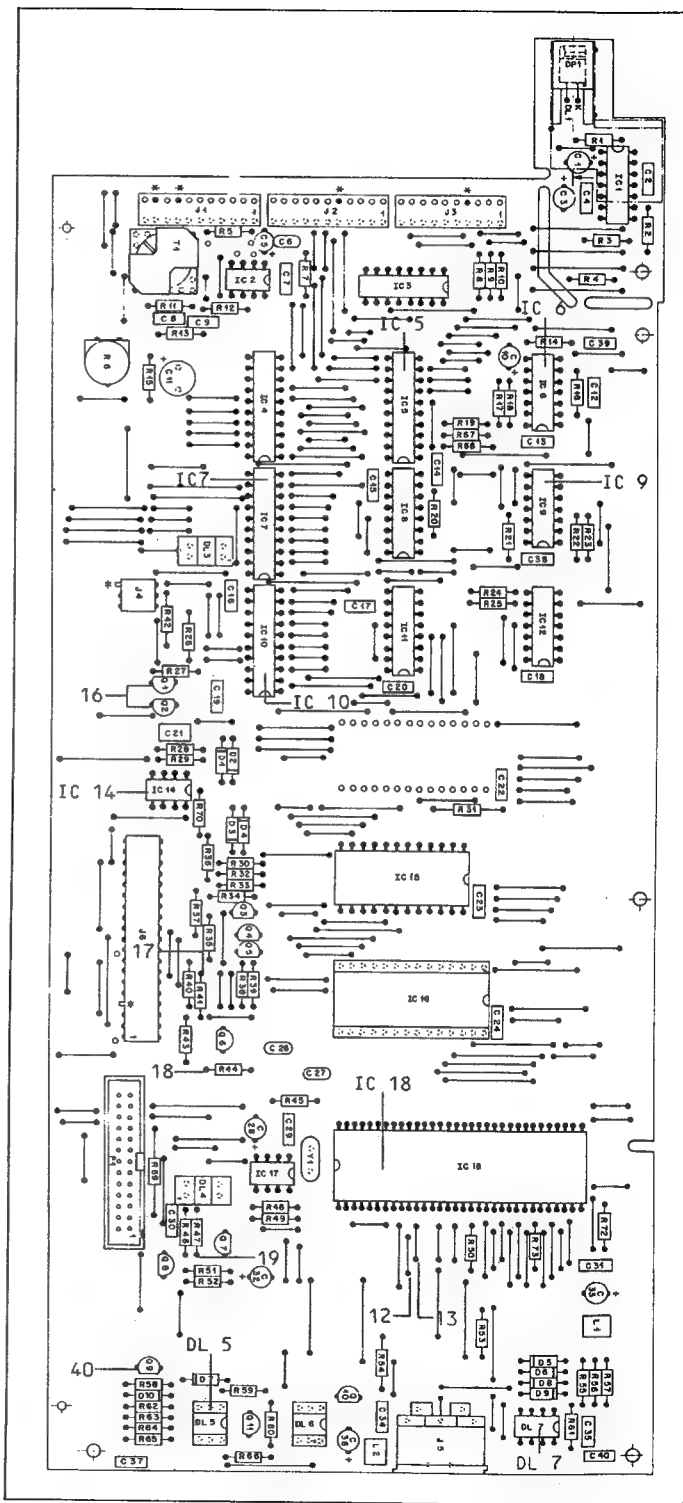


Fig. 4.12

|    | Name             | SIGNAL | PLAY                                 | SEARCH  | CUEING </> |
|----|------------------|--------|--------------------------------------|---------|------------|
| 31 | IC 10:<br>pin 16 | ATSB   | + 5.0 V                              | + 5.0 V | 0.0 V      |
| 32 | pin 17           | MUSB   | + 5.0 V                              | 0.0 V   | + 5.0 V    |
| 33 | pin 19           | PULSE  | 0.0 V                                | + 5.0 V | PULSES     |
| 34 | IC 18:<br>pin 27 | MUTE   | 0.0 V @ AUDIO CD<br>+ 5.0 V @ CD ROM |         |            |

|    | Name             | Signal | WITHOUT<br>IR SIGNAL | WITH<br>IR SIGNAL |
|----|------------------|--------|----------------------|-------------------|
| 35 | IC 10:<br>pin 12 | IR-REC | 0.0 V                | + 5.0 V           |

|    | Name            | Signal | POWER ON | REMARKS       |
|----|-----------------|--------|----------|---------------|
| 36 | IC 18:<br>pin 6 | RES    | + 5.0 V  | "LOAD": 0.0 V |
| 37 | pin 8           | NMI    | + 5.0 V  |               |

|    | Name           | SERIAL LINK CONNECTOR |                               |
|----|----------------|-----------------------|-------------------------------|
|    |                | NO CONNECTION         | SHORTED PINS:<br>1<->2; 4<->5 |
| 38 | DL 7:<br>pin 7 | + 0.3 V               | + 0.1 V                       |
|    |                | NO CONNECTION         | SHORTED PINS:<br>1<->2; 3<->5 |
| 39 | DL 5:<br>pin 5 | + 5.0 V               | 0.0 V                         |
| 40 | C.Q9           | 0.0 V                 | + 3.7 V                       |

## 4.3 REGLAGES

**INDICATIONS:**

Le mécanisme CD est un instrument optomécanique de précision et ne doit donc être saisi qu'au châssis en aluminium et ne pas être exposé à la poussière. L'optique à laser peut être nettoyée au moyen d'un pinceau à soufflet. Ne pas utiliser de nettoyeurs qui risqueraient de détruire le mécanisme de mise au point. Le mécanisme CD est pourvu de paliers autograissants et ne nécessite aucun entretien.

**ATTENTION**

Le rayon laser peut blesser l'oeil humain. Une vision directe dans l'optique, l'utilisation d'un miroir ou d'une loupe sont à éviter.

## 4.3.1 Contrôle de l'optique à laser

→ fig. 4.13 / fig. 4.14

- Mettre l'appareil hors tension et retirer la fiche du secteur.
- Sortir le mécanisme (section 2.4.1).
- Placer le mécanisme sorti (sans panier) sous une source de lumière. Tendre un fil devant la source de lumière de manière qu'il jette sur le mécanisme une ombre mince rectiligne.
- Poser le petit miroir sur la lentille laser et le disque de verre (tous deux dans le jeu no. 46242) sur le mécanisme
- Mettre le bras lecteur à laser en position médiane et tourner le mécanisme de manière que l'ombre de la source soit au centre du bras et parallèle à celui-ci.
- En observant les deux ombres sur le disque de verre et le miroir (fig. 4.13) on ne doit pas constater de décalage latéral de plus de 2,5 mm.
- Poser le mécanisme de manière que la ligne d'ombre tombe perpendiculairement au bras mais en passant par le centre du miroir sur l'optique à laser (fig. 4.14).
- Le décalage latéral des lignes d'ombre ne doit pas dépasser 2,5 mm ici non plus.

## 4.3.2 Correction de l'optique à laser

→ fig. 4.15

- Contrôle de l'optique à laser (section 4.3.1).
- Desserrer 2 vis [A] jusqu'à ce que la plaque [B] puisse être déplacée (fig. 4.15).
- Corriger la position de la plaque selon fig. 4.15.
- Lorsque la position est correcte, serrer avec soin les vis [A].
- Contrôler à nouveau le réglage de l'optique à laser (section 4.3.1).
- Remonter le mécanisme.

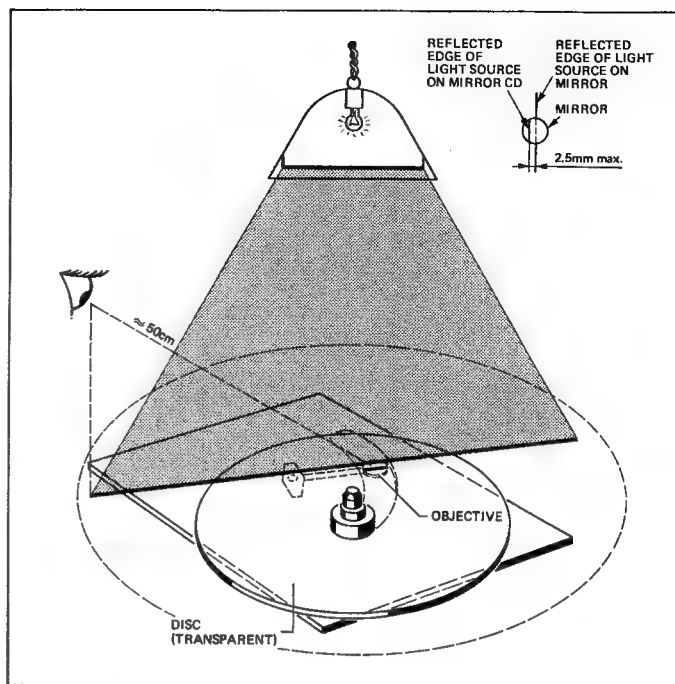


Fig. 4.13

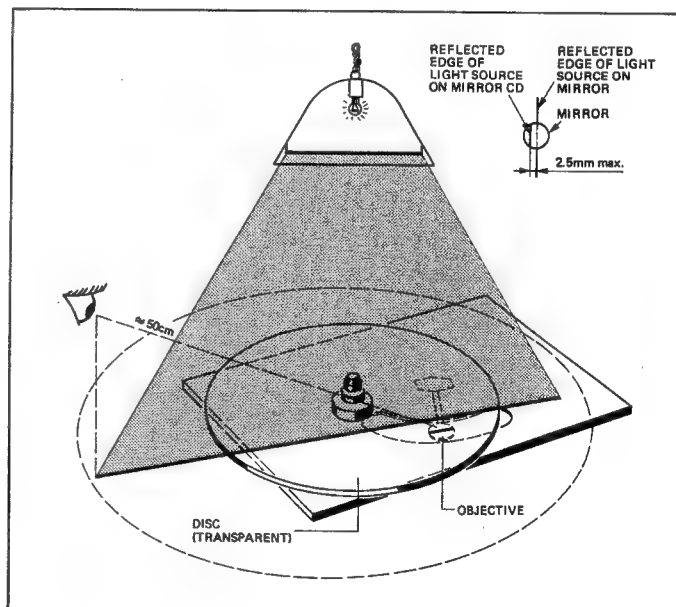


Fig. 4.14

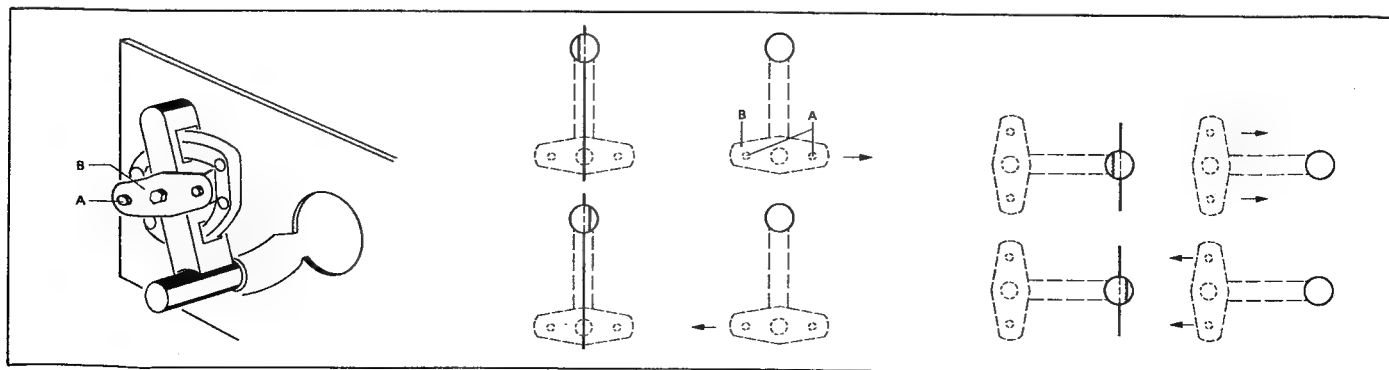


Fig. 4.15

#### 4.3.3 Ajustement du courant laser

-> fig. 4.16

- Déposer le mécanisme (paragraphe 2.4.1).
- Dévisser le SERVO PCB (paragraphe 2.5.6).
- Retourner le lecteur de CD et placer le mécanisme dans sa position normale.
- Jouer le CD test No 3 (Track 1).
- Ajuster le potentiomètre R 3106 du SERVO PCB, pour obtenir une tension continue de 50 mV  $\pm$  5mV aux bornes de R 3102 (4k7).

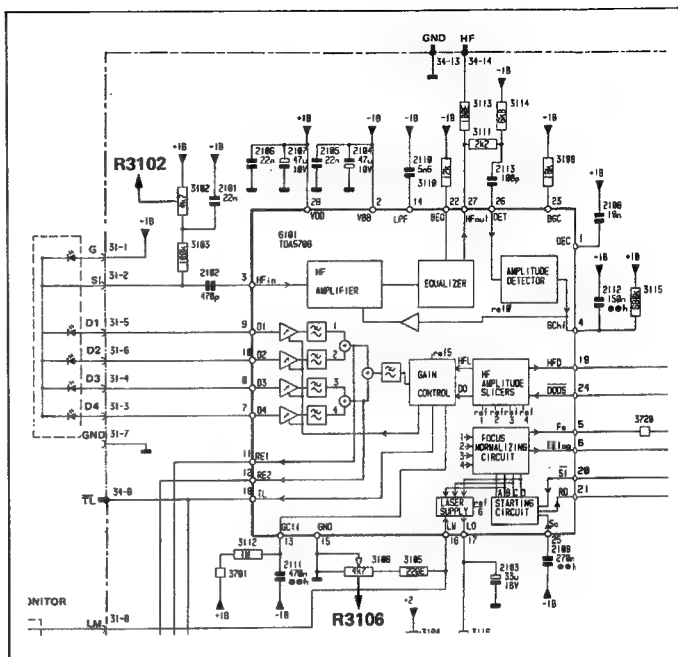


Fig. 4.16

#### 4.3.4 Réglage de la précision du focus

-> fig. 4.17

Le chassis doit être dans une position normale de travail. Pour le réglage utiliser le disque CD No.3 de Philips, ainsi qu'un volt-mètre digital.

- Faire démarrer le chassis en actionnant progressivement le potentiomètre R 3146 1,2,3 etc.
- Le laser étant focalisé, sur C 2136 obtenir à l'aide du potentiomètre R 3146 une chute de tension de +400 mV DC par rapport à la masse.

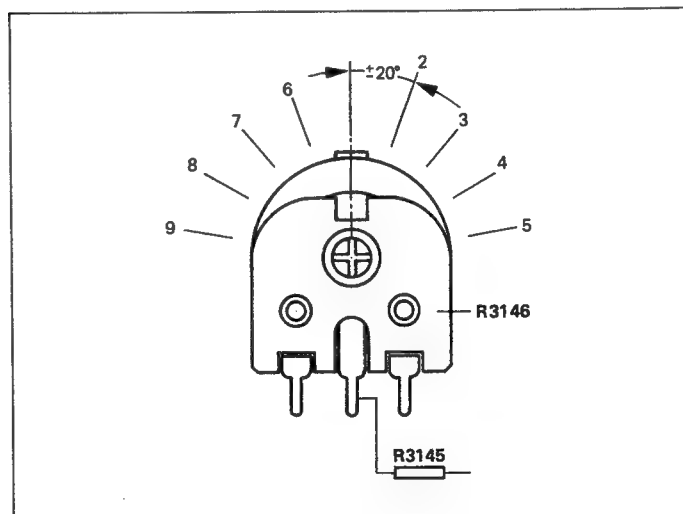


Fig. 4.17

## 4.3.5 Test de la commande de moteur à effet Hall

-&gt; fig. 4.18 / fig. 4.19

- Interrompre le raccord Vc en désoudant la connection 02-4 sur le MOTOR PCB.
  - Installer un potentiomètre d'ajustage de 22 kΩ en série avec une résistance de 3,3 kΩ sur le MOTOR PCB entre le point de raccord 02-3 et l'alimentation de -6V.
  - Raccorder le patin du potentiomètre d'ajustage au travers de l'interrupteur S avec le raccord 02-4 (Vc).
  - A l'aide de l'oscilloscope mesurer d'abord parallèlement à R 3094 et ensuite au travers de R 3093. L'oscilloscope ne doit pas être raccorder en même temps sur les deux résistances, étant donné que le courant se mesure sur les raccords +2 et -2.
  - Mettre le potentiomètre d'ajustage sur le maximum. (Son patin se trouve maintenant raccorder à la résistance de 3,3 kΩ).
  - Placer un disque dans le tiroir.
  - Mettre le CD Player en MODE SERVICE:
    - Presser sur l'appareil déclenché les deux touches PROGRAM STEP +/- resp. STEP +/- et enclencher en même temps l'appareil en pressant la touche POWER.
    - A l'affichage, on ne voit plus que l'indication clignotante STEP et en dessous le chiffre 1.
  - L'interrupteur S étant enclenché, tourner le potentiomètre d'ajustage afin d'obtenir 3 impulsions complètes par 0,1 seconde. Choisir la polarité de l'oscilloscope de façon à ce que les impulsions montrent vers l'haut. L'aimant du rotor du moteur à 3 paires de pôles, il est donc possible de mesurer une révolution lors d'une vitesse de rotation de 600 tours/min.
  - Mesure à l'aide d'un voltmètre DC sur 02-4 (Vc):
    - $V_c = -1,7 \pm 0,5V$
    - Mesure au travers 3094, valeur 1 = max. 56,4 mV
    - Mesure au travers 3093, valeur 2 = max. 58,8 mV
    - Différence: Valeur 1 - Valeur 2 = max. 6,0 mV
 Si la différence excède 6 mV, alors que la valeur 1 et la valeur 2 en dessous du maximum, le moteur est défectueux.
  - Pour un bon fonctionnement le signal doit avoir les valeurs suivantes (fig. 4.19):
    - La valeur maximale (TOP) n'est pas définie (valeur 1 et valeur 2).
    - Différence de pointe 24 mV
    - Différence de flanc 36 mV
    - Valeur de la base (FOOT) non définie
- Remarque:**  
La différence de flanc n'apparaît que lors d'une impulsion asymétrique. La valeur de base (FOOT) correspond à DC-Offset.
- Exemples de mauvais signaux voir fig. 4.19.
  - A l'aide du potentiomètre d'ajustage, régler une tension de -0,9 V sur le point 02-4 (Vc); le moteur doit continuer de tourner. Même lors de signaux avec une amplitude minimale, la symétrie et la forme du signal ne doivent pas changer.
  - Le MODE SERVICE se déclenche en éteignant l'appareil ou en retirant la fiche secteur. Le lecteur CD est ainsi prêt pour le fonctionnement normal à la prochaine mise sous tension.

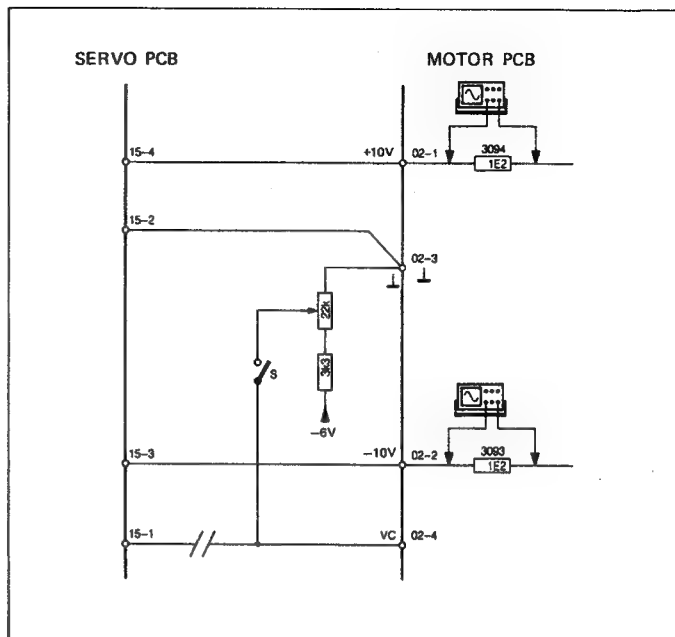


Fig. 4.18

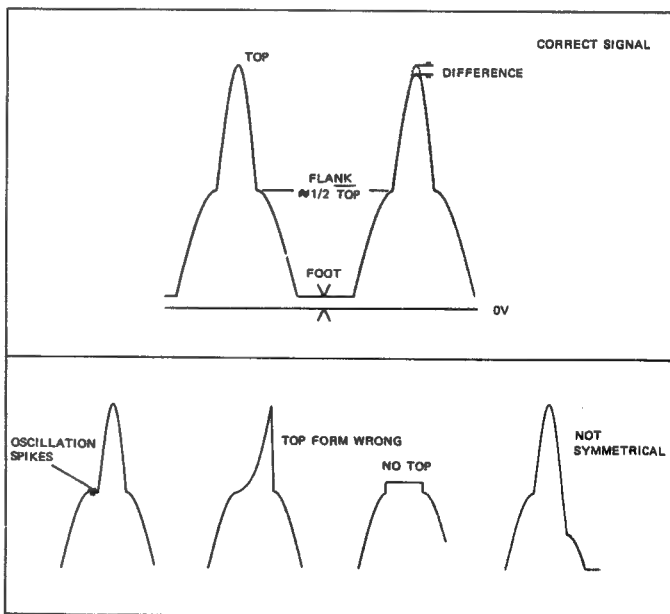


Fig. 4.19



#### 4.4 MESURE DES DONNEES AUDIO

- Facteur de distorsion
- Niveau de sortie
- Réponse en fréquence
- Diaphonie
- Ecart signal/parasites
- Ecart signal/bruit
- Linéarité de phase
- Evaluation acoustique

##### 4.4.1 Facteur de distorsion

→ fig. 4.20

- Montage selon fig. 4.20 avec filtre de mesure de distorsions à la sortie VARIABLE OUTPUT [2].
- Régler le niveau maximal de sortie avec la touche VOLUME + [20].
- Jouer le disque test no. 3.  
Pour la mesure du canal gauche TRACK 4, et pour la mesure du canal droit TRACK 8.  
Pour tous les fréquences du TRACK 4 et du TRACK 8, le facteur de distorsion doit être inférieur à 0,005% (B126) et 0,004% (B226-S)
- Effectuer les mêmes mesures aussi aux sorties FIXED OUTPUT [1].

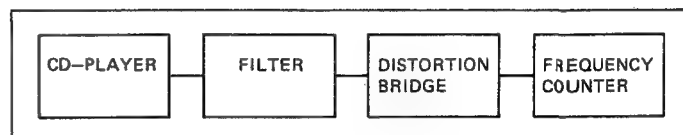


Fig. 4.20

##### 4.4.2 Niveau de sortie

- Régler le niveau maximal de sortie avec la touche VOLUME + [20].
- Jouer le CD test no. 3 TRACK 2/3.
- Mesurer au voltmètre BF les niveaux des sorties FIXED [1] et VARIABLE [2].
- La valeur mesurée doit être de 2,5 V RMS  $\pm 1$  dB.  
Egalité des canaux: meilleure que 0,2 dB.

##### 4.4.3 Réponse en fréquence

- Contrôler le niveau de sortie (section 4.4.2).
- Jouer le CD test no. 3, TRACK 2 (canal gauche / 1 kHz) et régler la référence de niveau à 0 dB.
- Jouer le CD test no. 3, TRACK 4 pour le canal gauche et TRACK 8 pour le canal droit.
- Au niveau de sortie maximal, la réponse en fréquence des sorties FIXED [1] et VARIABLE [2] doit être dans la tolérance de  $\pm 0,1$  dB pour tous les fréquences (41 Hz, 101 Hz, 997 Hz, 3163 Hz, 6373 Hz, 10007 Hz, 16001 Hz, 19001 Hz, 19997 Hz).

##### 4.4.4 Diaphonie

- Régler le niveau maximal de sortie avec la touche VOLUME + [20].
- Jouer le CD test no. 3, TRACK 2 (canal gauche / 1 kHz) et régler la référence de niveau à 0 dB.
- Mesurer les deux sorties par un filtre passe-bas 30 kHz: TRACK 4 pour la mesure de diaphonie L à R. TRACK 8 pour la mesure de diaphonie R à L.
- L'affaiblissement de diaphonie doit être d'au moins 90 dB.

##### 4.4.5 Ecart signal/parasites

- Régler le niveau maximal de sortie avec la touche VOLUME + [20].
- Jouer le CD test no. 3, TRACK 2 (canal gauche / 1 kHz) et régler la référence de niveau à 0 dB.
- Jouer le CD test no. 3, TRACK 18 ("silence digitale").
- Mesurer les sorties FIXED [1] et VARIABLE [2] par un filtre passe-bas 30 kHz.
- La valeur obtenue doit être supérieure à 100 dB (B126) et 102 dB (B226-S).

#### 4.4.6 Ecart signal/bruit

- Régler le niveau maximal de sortie avec la touche VOLUME + [20].
- Mesurer les sorties FIXED [1] et VARIABLE [2] par un filtre passe-bas et un filtre avec courbe de pondération "A".
- Jouer le CD test no. 3, TRACK 2 (canal gauche / 1 kHz) et régler la référence de niveau à 0 dB.
- Jouer le CD test no. 3, TRACK 18 ("silence digitale").
- La valeur obtenue doit être supérieure à 106 dB (B126) et 108 dB (B226-S).

#### 4.4.7 Linéarité de phase

→ fig. 4.21

- Régler le niveau maximal de sortie avec la touche VOLUME + [20].
- Jouer le CD test no. 3, TRACK 20.
- Raccorder l'oscilloscope à une sortie et évaluer optiquement les signaux rectangulaires à 100 Hz, 400 Hz, 1002 Hz et 5512 Hz. La courbe doit être symétrique (fig. 4.20).

#### 4.4.8 Evaluation acoustique

- Jouer le CD test no. 5A et surveiller les défauts de reproduction (interruptions).
- Le CD test contient les défauts simulés suivants:
  - Interruptions d'information de 400...900  $\mu$ m sur TRACK 5
  - TRACK 9.
  - Points noirs (Black Dots) de 300 ... 800  $\mu$ m sur TRACK 11
  - TRACK 17.
  - Empreinte digitale simulée sur TRACK 18 et 19.
- Cette évaluation n'est évidemment possible qu'avec un CD test impeccable et manipulé avec soin. Des défauts supplémentaires peuvent s'ajouter aux défauts simulés et provoquer l'interruption de la reproduction.

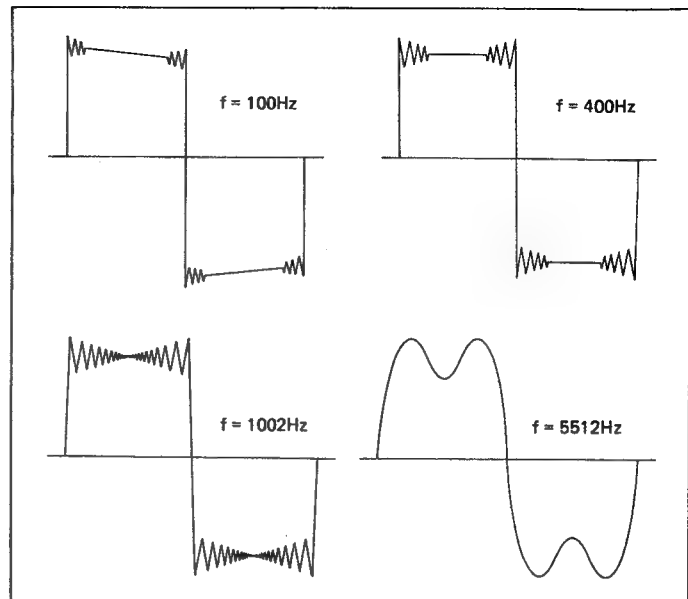


Fig. 4.21

5. SCHEMATA SPARE PARTS PIECE DE RECHANGE

INHALT CONTENTS SOMMAIRE Page

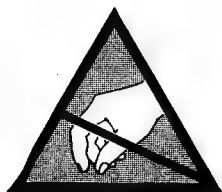
|                           |                 |      |
|---------------------------|-----------------|------|
| BLOCK DIAGRAM B126/B226-S |                 | 5/1  |
| TRANSFORMER PCB           | 1.769.450.00    | 5/3  |
| TRANSFORMER PCB           | 1.769.451.00    | 5/3  |
| TRANSFORMER PCB           | 1.769.452.00    | 5/3  |
| DECODER PCB ▲             | 1.769.421.00 *  | 5/5  |
| DECODER PCB ▲             | 1.769.422.00 ** | 5/8  |
| MICROPROCESSOR PCB ▲      | 1.769.402.20 *  | 5/12 |
| MICROPROCESSOR PCB ▲      | 1.769.406.20 *  | 5/16 |
| MICROPROCESSOR PCB ▲      | 1.769.404.20 ** | 5/18 |
| MICROPROCESSOR PCB ▲      | 1.769.407.20 ** | 5/22 |
| LCD-PCB ▲                 | 1.769.255.00 *  | 5/25 |
| LCD-PCB ▲                 | 1.769.455.00 ** | 5/25 |
| KEYBOARD LEFT             | 1.769.215.00    | 5/27 |
| KEYBOARD RIGHT            | 1.769.202.00    | 5/27 |
| INTERCONNECTION CABLE     | 1.769.457.00    | 5/29 |
| ILLUMINATION BOARD        | 1.769.565.00 *  | 5/29 |
| CD-DRIVE ■                | 1.769.117.00 *  | 5/30 |
| CD-DRIVE ■                | 1.769.118.00 ** | 5/30 |

\* B126 only

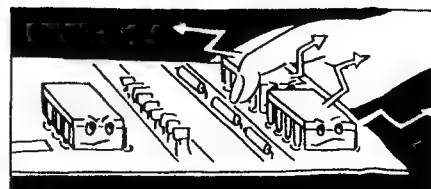
\*\* B226S only

All other components are used with both CD-Players.

■ The CD-Drives 1.769.117/118.00 are delivered complete with SERVO PCB and MOTOR PCB !



ALL PCBs MARKED WITH THIS SIGN ▲  
CONTAIN COMPONENTS SENSITIVE TO  
STATIC CHARGES.  
PLEASE, REFER TO PREFACE BEFORE YOU  
REMOVE THESE BOARDS.



## ABBREVIATIONS

## COMPONENTS

|      |                       |     |                       |
|------|-----------------------|-----|-----------------------|
| B    | bulb                  | M   | motor                 |
| BA   | battery, accumulator  | ME  | meter                 |
| BR   | optocoupler B->LDR    | MIC | microphone            |
| C    | capacitor             | MP  | mechanical part       |
| D    | diode, DIAC           | P   | plug (male)           |
| DL   | LED light-emit.diode  | PU  | pick up               |
| DLQ  | optocoupler LED->QP   | Q   | transistor            |
| DLR  | optocoupler LED->DLR  | QP  | phototransistor       |
| DLZ  | LED array, 7s.display | QPZ | phototransistor array |
| DP   | photodiode            | R   | resistor              |
| DZ   | rectifier             | RP  | light depend. resist. |
| E    | electronic part       | RT  | temp. sensit. resist. |
| kpEF | headphones            | RZ  | resistor array        |
| F    | fuse                  | S   | switch                |
| FL   | filter                | T   | transformator         |
| H    | head (sound-/erase-)  | TL  | delay line            |
| HC   | hybrid circuit        | TP  | test point            |
| HE   | hall element          | W   | wire, stranded wire   |
| IC   | integrated circuit    | X   | socket, holder        |
| J    | jack (female)         | XB  | lamp socket           |
| JS   | jumper                | XF  | fuse holder           |
| K    | relay, contactor      | XIC | IC socket             |
| L    | coil, inductance      | Y   | quartz, piezoelement  |
| LC   | LC Display            | Z   | network, array        |
| LS   | loudspeaker           |     |                       |

## SPECIFICATIONS OF ELEMENTS

|      |              |      |                      |
|------|--------------|------|----------------------|
| CC   | Carbonfilm   | MP   | Metal paper          |
| Cer  | Ceramic      | PCF  | Carbonfilm           |
| Cerm | Cermet       | Petp | Polyester            |
| El   | Electrolytic | Pme  | Metallised Polyester |
| Mf   | Metalfilm    | PP   | Polypropylen         |
|      |              | Si   | Silizium             |
|      |              | Tri  | Trimmer              |

## MANUFACTURER OF COMPONENTS

|     |                      |     |                   |
|-----|----------------------|-----|-------------------|
| ADI | Analog Devices Inc.  | Ra  | Raytheon          |
| AMP | Ampex                | RCA | Radio Corporation |
| Com | Componex             | --- | RIVA              |
| Dam | Dam Electronic       | SDS |                   |
| Del | Delevan              | Sie | Siemens           |
| Ex  | Exar                 | SIG | Signetics         |
| GI  | General Instrument   | --- | Stetner           |
| Ha  | Harris               | --- | Stocko            |
| Hi  | Hirschmann           | St  | Studer            |
| ITT | Intermetal, Valvo    | Sx  | Siliconix         |
| Mot | Motorola             | Ti  | Texas Instruments |
| NEC | Nippon Electr. Corp. | TDK | TDK               |
| NS  | Nat. Semiconductors  | --- | Toko              |
| Ph  | Philips              | To  | Toshiba           |
|     |                      | Vi  | Videlec           |

## POWERS OF TEN

| Milli-           | Mikro-           | Nano-            | Pico-             | Femto-            | Tera-            | Giga-           | Mega-           | Kilo-           |
|------------------|------------------|------------------|-------------------|-------------------|------------------|-----------------|-----------------|-----------------|
| m                | μ                | n                | p                 | f                 | T                | G               | M               | K               |
| 10 <sup>-3</sup> | 10 <sup>-6</sup> | 10 <sup>-9</sup> | 10 <sup>-12</sup> | 10 <sup>-15</sup> | 10 <sup>12</sup> | 10 <sup>9</sup> | 10 <sup>6</sup> | 10 <sup>3</sup> |

## CODE LETTERS AND COLORS

## RESISTORS

## ■ SERIES E6/E12/E24

| COLOR  | DIG | x    | ±     | TC                       |
|--------|-----|------|-------|--------------------------|
| gold   | -   | 0,01 | 5%    | -                        |
| silver | -   | 0,1  | 10%   | -                        |
| black  | 0   | 1    | -     | -                        |
| brown  | 1   | 10   | 1%    | 100*10 <sup>-6</sup> /K  |
| red    | 2   | 100  | 2%    | 50*10 <sup>-6</sup> /K # |
| orange | 3   | 1k   | -     | 15*10 <sup>-6</sup> /K   |
| yellow | 4   | 10k  | -     | 25*10 <sup>-6</sup> /K   |
| green  | 5   | 100k | 0,5%  | -                        |
| blue   | 6   | 1M   | 0,25% | -                        |
| violet | 7   | 10M  | 0,1%  | -                        |
| grey   | 8   | -    | -     | -                        |
| white  | 9   | -    | -     | -                        |

Digit  
Multiplier  
Tolerance



## ■ SERIES E48

Digit  
Multiplier  
Tolerance  
TC



# either no mark for TC, or red.  
1 black ring only: 0 Ω (= bridge)

## CAPACITORS

The tolerance category is sometimes specified by a letter after the rated capacitance.

D = 0,5% J = 5%  
F = 1% K = 10%  
G = 2% M = 20%

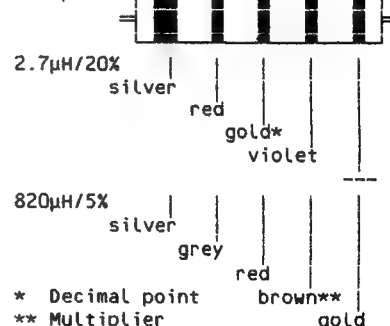
## MOLDED RF COILS

A wide silver-colored ring and 4 thin, differently colored rings identify molded RF coils. The wide silver ring indicates the start of the counting direction. The second, third, and fourth ring indicate the inductance in micro Henry (μH), where two of the three rings represent the numeric value, the third one either a multiplier or the decimal point. In the latter case it has a golden color. The fifth ring identifies the tolerance in percent (±).

## COLOR DIG x ±

| COLOR  | DIG | x               | ±    |
|--------|-----|-----------------|------|
| black  | 0   | 1               | -    |
| brown  | 1   | 10              | 1%   |
| red    | 2   | 100             | 2%   |
| orange | 3   | 10 <sup>3</sup> | -    |
| yellow | 4   | 10 <sup>4</sup> | -    |
| green  | 5   | 10 <sup>5</sup> | 0.5% |
| blue   | 6   | 10 <sup>6</sup> | -    |
| violet | 7   | 10 <sup>7</sup> | -    |
| grey   | 8   | 10 <sup>8</sup> | -    |
| white  | 9   | 10 <sup>9</sup> | -    |
| gold   | .   | -               | 5%   |
| silver | -   | -               | 10%  |
| any    | -   | -               | 20%  |

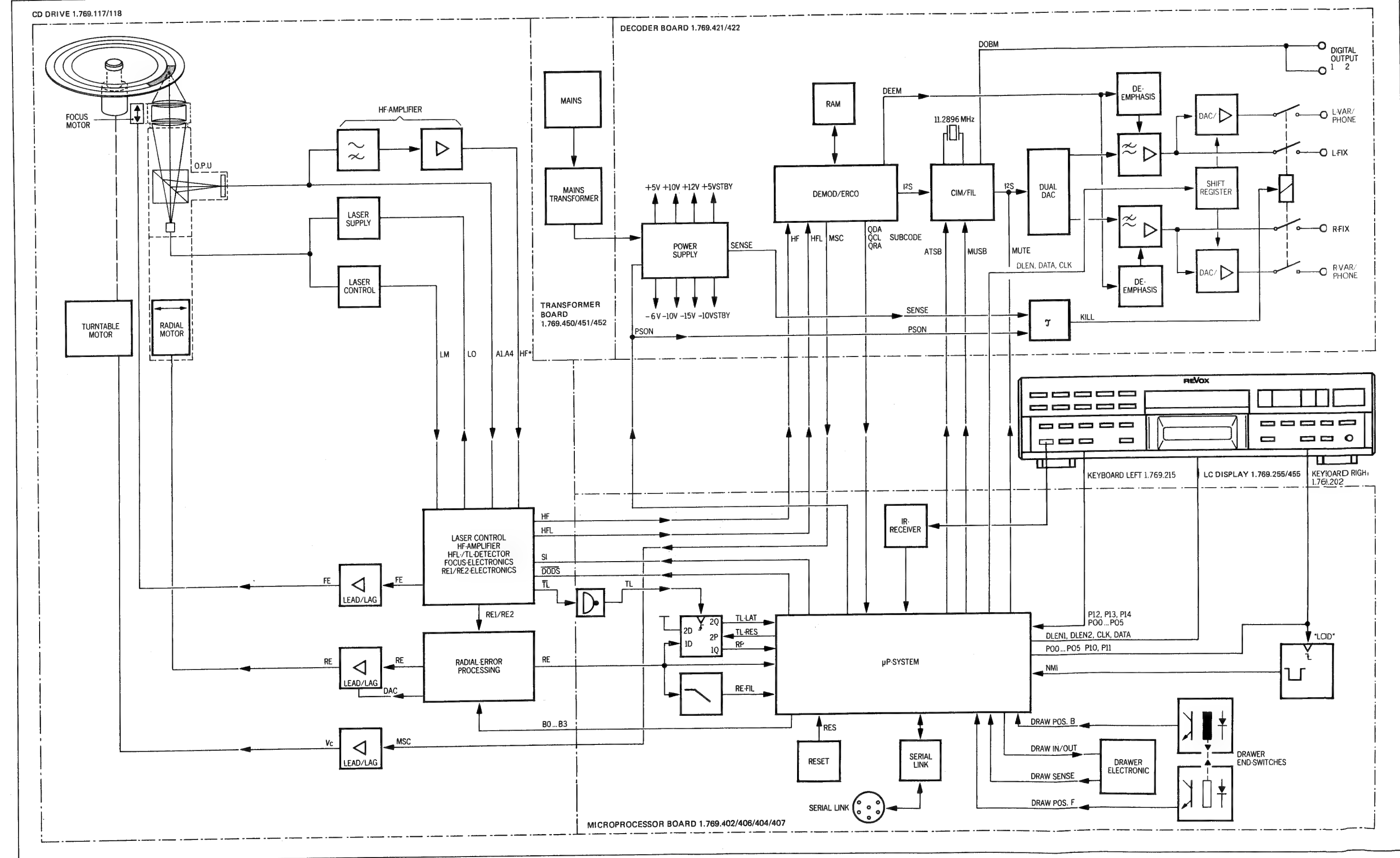
Examples:



## NOTE:

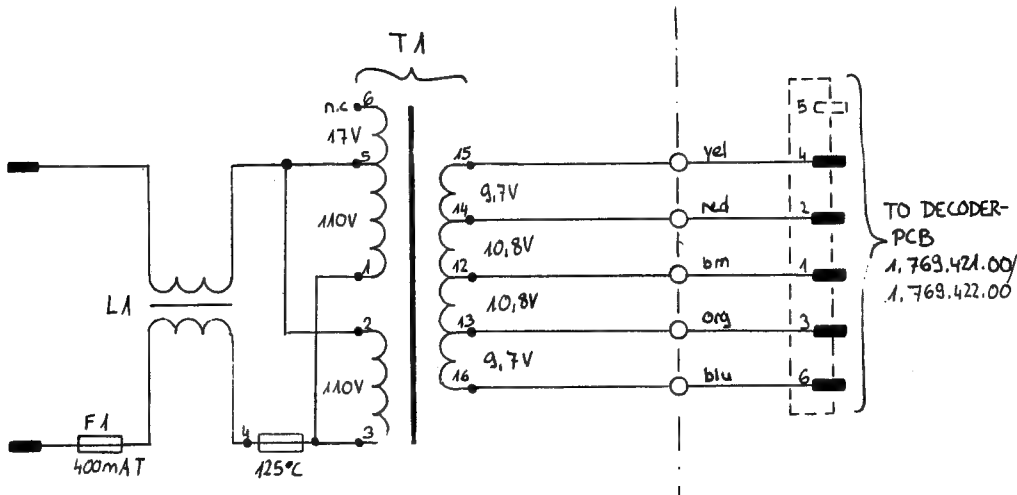
Some of the order numbers contained in the following lists are used for production purposes only. The reference numbers may deviate for service purposes. Electrical components such as resistors, capacitors, transistors, IC's etc. having no special unit-specific number and not being identified respectively should be purchased locally.

## BLOCK DIAGRAM B126/226-S

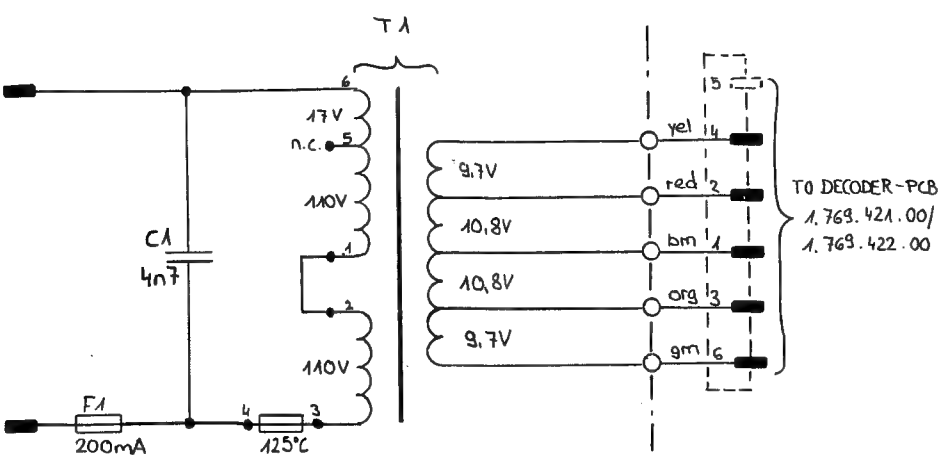




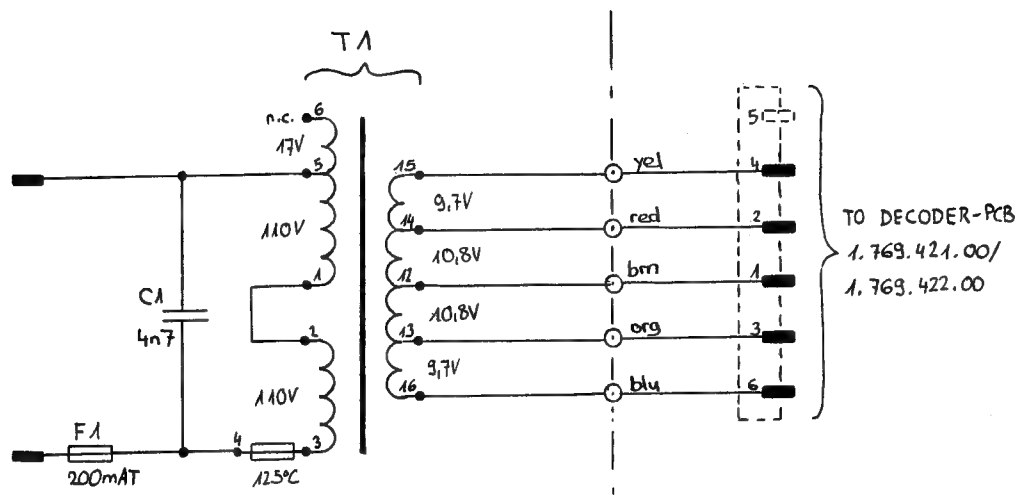
TRANSFORMER BOARDS 1.769.450/451/452.00 B126/226-S



|                  |      |                        |      |      |              |
|------------------|------|------------------------|------|------|--------------|
| ① 220388 S.Wicki | ② .. | ③ ..                   | ④ .. | ⑤ .. |              |
|                  | Lot  | B126/226-S CD-PLAYER   |      |      | PAGE 1 OF 1  |
| STUDER           |      | TRANSFORMER-BOARD-110V |      | SC   | 1.769.451.00 |



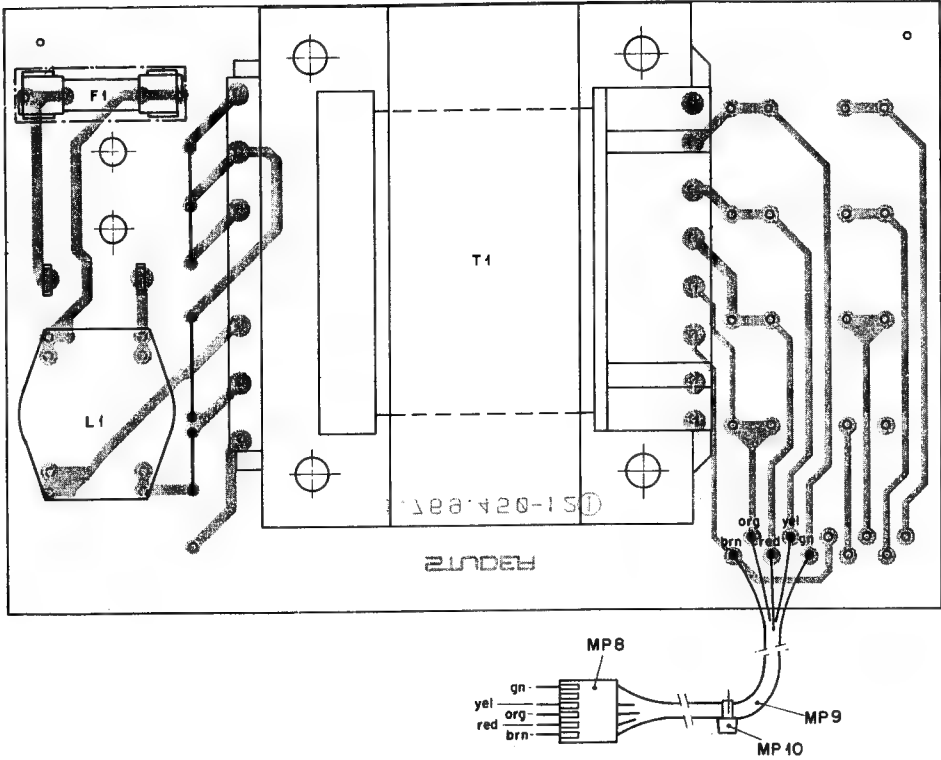
|           |         |           |                      |                        |      |              |
|-----------|---------|-----------|----------------------|------------------------|------|--------------|
| ① 22.0888 | S.Wicki | ② 24.1088 | S.Wicki              | ○ ..                   | ○ .. | ○ ..         |
|           |         |           | BA26/226-S CD-PLAYER | PAGE 1 OF 1            |      |              |
| STUDER    |         |           |                      | TRANSFORMER-BOARD-240V | SC   | 1.769.452.00 |



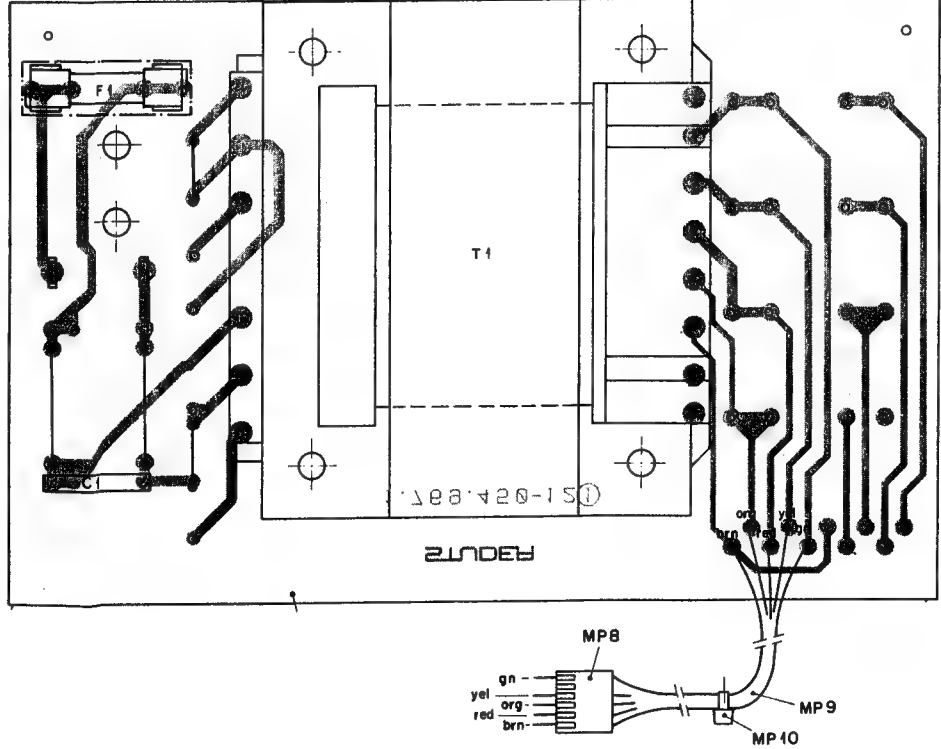
|                         |                  |      |                        |                 |
|-------------------------|------------------|------|------------------------|-----------------|
| ① 220388 S.Wicki        | ② 244088 S.Wicki | ③ .. | ④ ..                   | ⑤ ..            |
| RA B126/226-S CD-PLAYER |                  |      |                        | PAGE 1 OF 1     |
| STUDER                  |                  |      | TRANSFORMER-BOARD-220V | SC 1.769.450.00 |

TRANSFORMER BOARDS 1.769.450/451/452.00 B126/226-S

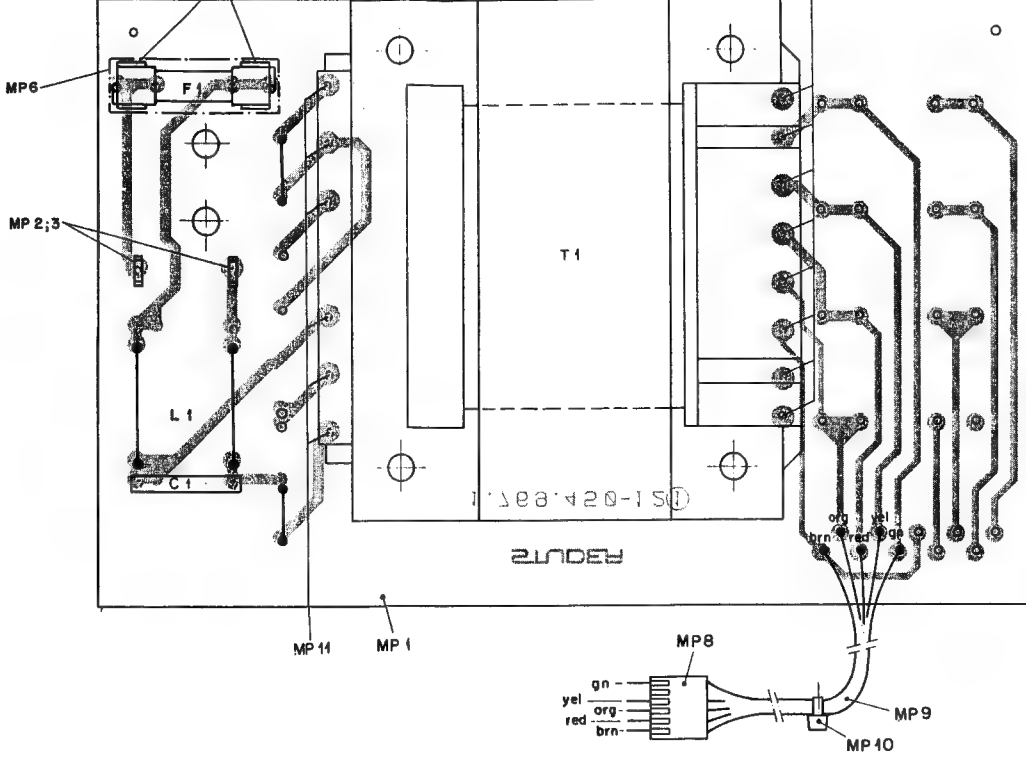
110V



220V



240V



| IND. | POS.-NO.  | PART NO.     | VALUE  | SPECIFICATIONS / EQUIVALENT   | MANUF. |
|------|-----------|--------------|--------|-------------------------------|--------|
| (02) | C.....1   | 59-14-0472   | 4.7 n  | NOISE SUPPRESSION CAPACITOR   |        |
|      | F.....1   | 51-01-0110   |        | T 200 mA 5 x 20               |        |
| (00) | L.....1   | 62-03-0100   |        | CHOKE                         |        |
| (02) |           |              |        | not used                      |        |
| (00) | MP.....1  | 1.769.450-11 |        | TRANSFORMER-PCB               | St     |
| (01) | MP.....1  | 1.769.450-12 |        | TRANSFORMER-PCB               | St     |
|      | MP.....2  | 54-02-0320   |        | FLAT-PIN                      |        |
|      | MP.....3  | 54-02-0320   |        | FLAT-PIN                      |        |
|      | MP.....4  | 53-03-0142   |        | FUSE-CLIP                     |        |
|      | MP.....5  | 53-03-0142   |        | FUSE-CLIP                     |        |
|      | MP.....6  | 51-99-0128   |        | FUSE-ISOLATION                |        |
|      | MP.....7  | 1.769.450-02 |        | LABEL                         | St     |
|      | MP.....8  | 54-01-0230   | 6 POLE | CIS PIN CASE                  |        |
|      | MP.....9  | 1.769.450-93 |        | WIRING-LIST TRANSFORMER-BOARD | St     |
|      | MP.....10 | 35-03-0160   |        | TY-RAP, PLASTIC               |        |
| (03) | MP.....11 | 28-21-0045   | 14 pcs | Tubular rivets                |        |
|      | T.....1   | 1.769.450-01 |        | TRANSFORMER B126/226-S        | St     |

(01) 13.04.88 phase to case distance too small  
(02) 24.10.88 Funkschutzzeichen  
(03) 24.10.88 modification for production  
MANUFACTURER: St-Studer  
ORIG 88/03/21 (01) 88/04/13 (02) 88/10/24 (03) 88/10/24  
S T U D E R (03) 88/10/24 STU TRANSFORMER-BOARD-220V PL 1.769.450-00 PAGE 1

| IND. | POS.-NO.  | PART NO.     | VALUE  | SPECIFICATIONS / EQUIVALENT   | MANUF. |
|------|-----------|--------------|--------|-------------------------------|--------|
|      | F.....1   | 51-01-0113   |        | T 400 mA 5 x 20               |        |
|      | L.....1   | 62-03-0100   |        | CHOKE                         |        |
| (00) | MP.....1  | 1.769.450-11 |        | TRANSFORMER-PCB               | St     |
| (01) | MP.....1  | 1.769.450-12 |        | TRANSFORMER-PCB               | St     |
|      | MP.....2  | 54-02-0320   |        | FLAT-PIN                      |        |
|      | MP.....3  | 54-02-0320   |        | FLAT-PIN                      |        |
|      | MP.....4  | 53-03-0142   |        | FUSE-CLIP                     |        |
|      | MP.....5  | 53-03-0142   |        | FUSE-CLIP                     |        |
|      | MP.....6  | 51-99-0128   |        | FUSE-ISOLATION                |        |
|      | MP.....7  | 1.769.450-02 |        | LABEL                         | St     |
|      | MP.....8  | 54-01-0230   | 6 POLE | CIS PIN CASE                  |        |
|      | MP.....9  | 1.769.450-93 |        | WIRING-LIST TRANSFORMER-BOARD | St     |
|      | MP.....10 | 35-03-0160   |        | TY-RAP, PLASTIC               |        |
| (02) | MP.....11 | 28-21-0045   | 14 pcs | Tubular rivets                |        |
|      | T.....1   | 1.769.450-01 |        | TRANSFORMER B126/226-S        | St     |

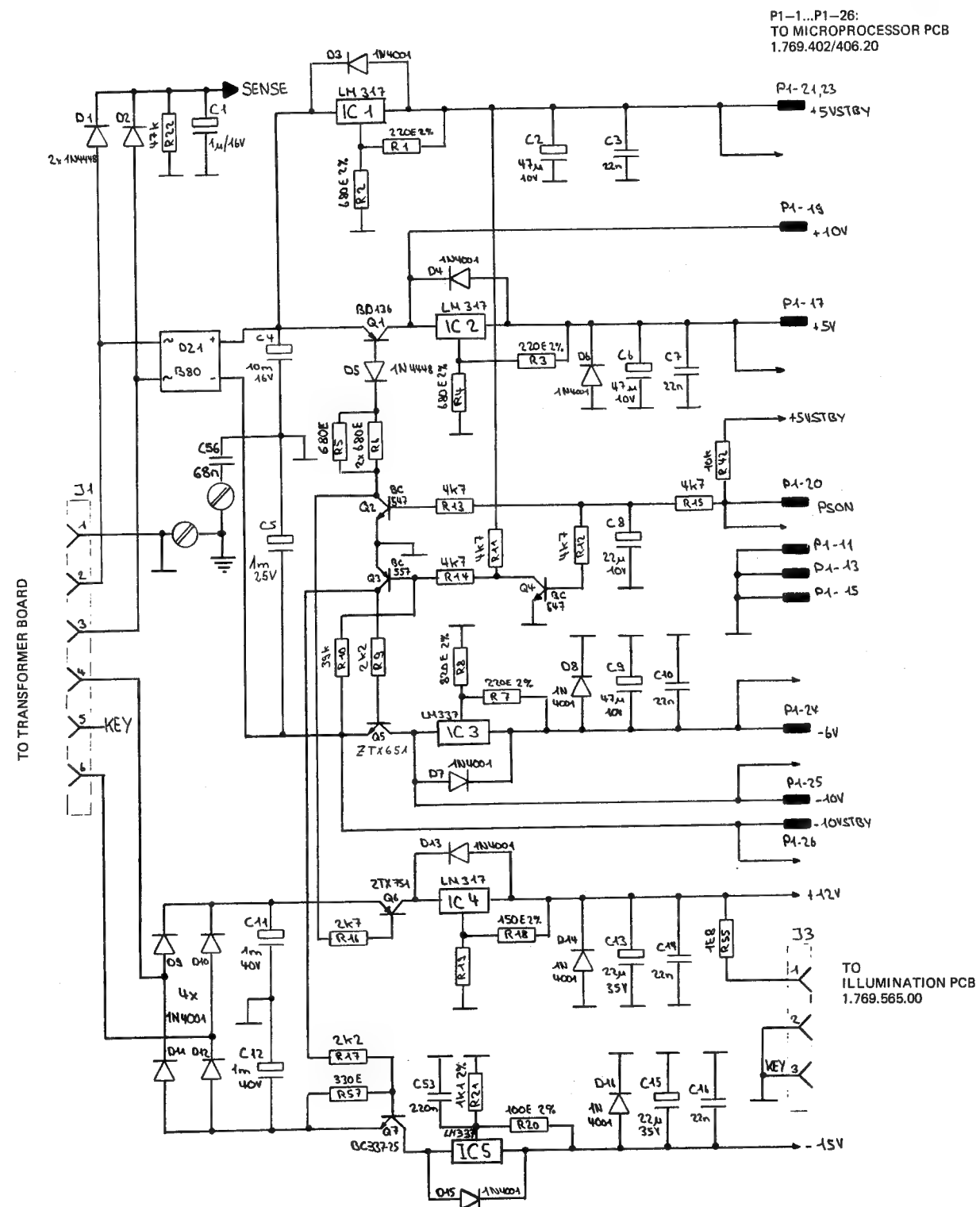
(01) 13.04.88 phase to case distance too small  
(02) 24.10.88 modification for production  
MANUFACTURER: St-Studer  
ORIG 88/03/21 (01) 88/04/13 (02) 88/10/24  
S T U D E R (02) 88/10/24 STU TRANSFORMER-BOARD-110V PL 1.769.451-00 PAGE 1

| IND. | POS.-NO.  | PART NO.     | VALUE  | SPECIFICATIONS / EQUIVALENT   | MANUF. |
|------|-----------|--------------|--------|-------------------------------|--------|
| (01) | C.....1   | 59-14-0472   | 4.7 n  | NOISE SUPPRESSION CAPACITOR   |        |
|      | F.....1   | 51-01-0110   |        | T 200 mA 5 x 20               |        |
| (00) | L.....1   | 62-03-0100   |        | CHOKE                         |        |
| (01) |           |              |        | not used                      |        |
|      | MP.....1  | 1.769.450-11 |        | TRANSFORMER-PCB               | St     |
|      | MP.....2  | 54-02-0320   |        | FLAT-PIN                      |        |
|      | MP.....3  | 54-02-0320   |        | FLAT-PIN                      |        |
|      | MP.....4  | 53-03-0142   |        | FUSE-CLIP                     |        |
|      | MP.....5  | 53-03-0142   |        | FUSE-CLIP                     |        |
|      | MP.....6  | 51-99-0128   |        | FUSE-ISOLATION                |        |
|      | MP.....7  | 1.769.450-02 |        | LABEL                         | St     |
|      | MP.....8  | 54-01-0230   | 6 POLE | CIS PIN CASE                  |        |
|      | MP.....9  | 1.769.450-93 |        | WIRING-LIST TRANSFORMER-BOARD | St     |
|      | MP.....10 | 35-03-0160   |        | TY-RAP, PLASTIC               |        |
| (02) | MP.....11 | 28-21-0045   | 14 pcs | Tubular rivets                |        |
|      | T.....1   | 1.769.450-01 |        | TRANSFORMER B126/226-S        | St     |

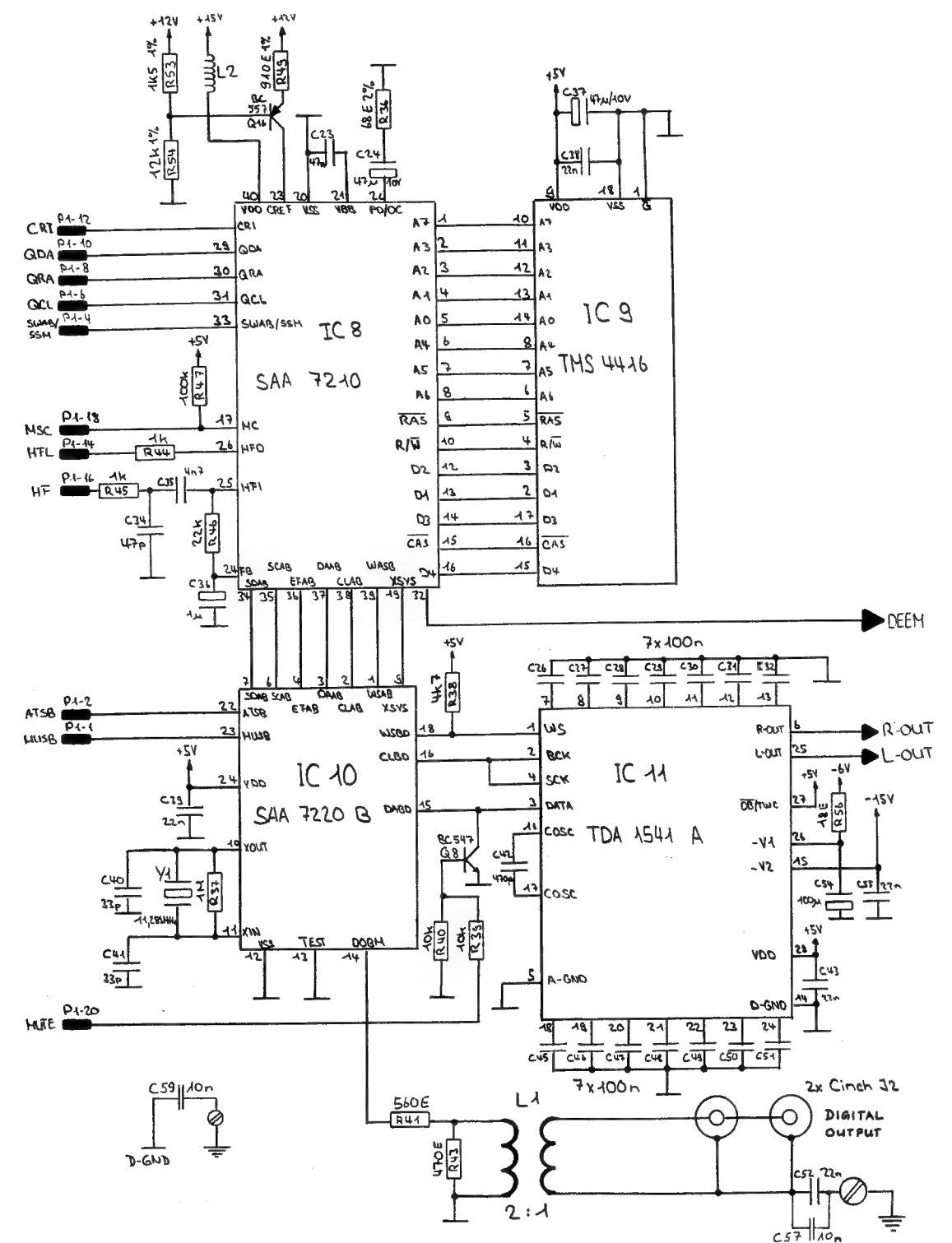
(01) 24.10.88 Funkschutzzeichen  
(02) 24.10.88 modification for production  
MANUFACTURER: St-Studer  
ORIG 88/08/16 (01) 88/10/24 (02) 88/10/24  
S T U D E R (02) 88/10/24 STU TRANSFORMER-BOARD-240V PL 1.769.452-00 PAGE 1



## DECODER PCB 1.769.421.00 B126



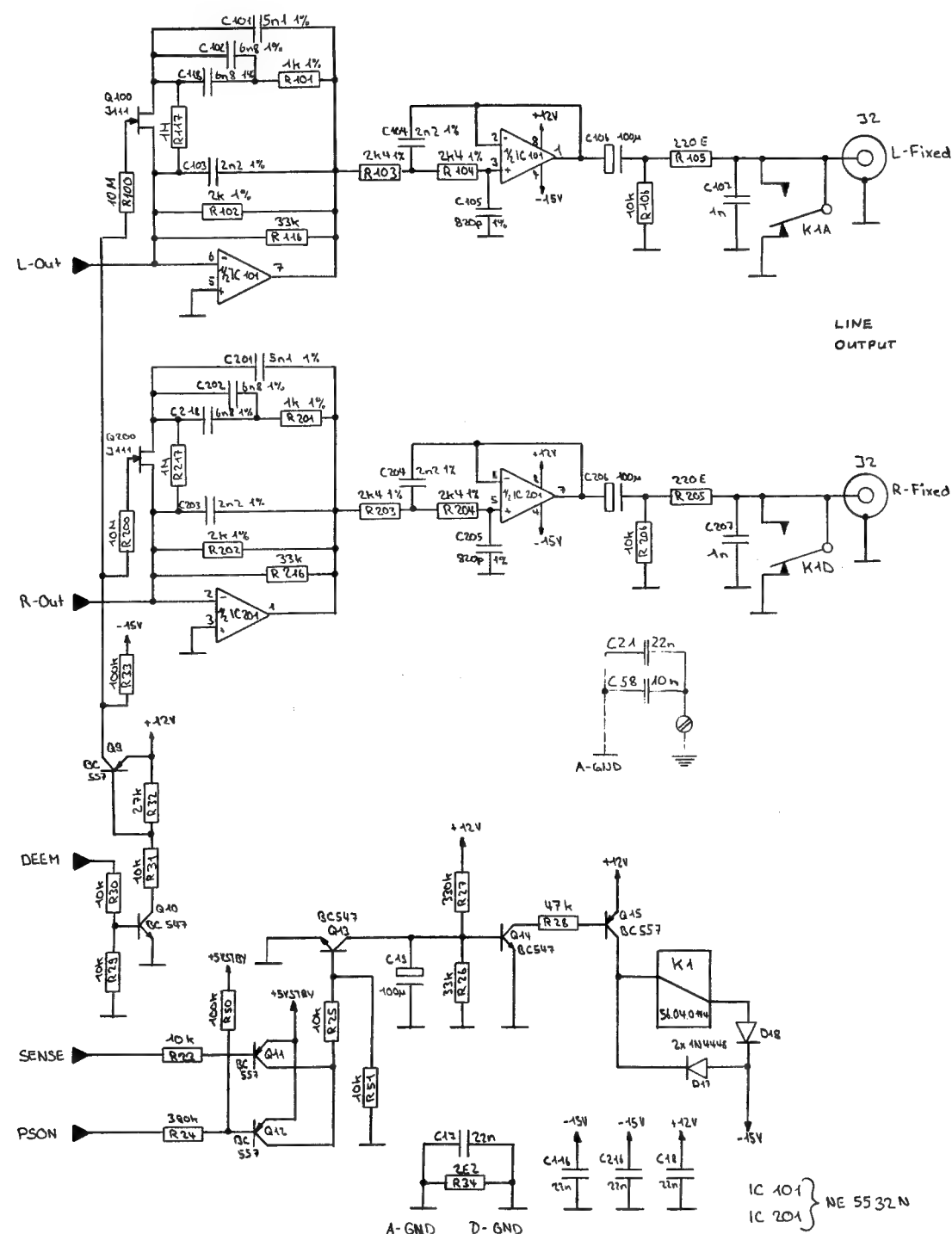
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|---------------------------|--------------------|---------------------|-----|-----------------|
| ① 28.04.88 LC             | ② 6.10.88 S. Nicki | ③ 24.10.88 S. Nicki | ... | ...             |
| B 126 COMPACT DISC PLAYER |                    |                     |     |                 |
| PAGE 1 OF 3               |                    |                     |     |                 |
| STUDER                    |                    | DECODER-BOARD       |     | SC 1.769.421.00 |



|                           |                    |                     |     |                 |
|---------------------------|--------------------|---------------------|-----|-----------------|
| ① 28.04.88 LC             | ② 6.10.88 S. Nicki | ③ 24.10.88 S. Nicki | ... | ...             |
| B 126 COMPACT DISC PLAYER |                    |                     |     |                 |
| PAGE 2 OF 3               |                    |                     |     |                 |
| STUDER                    |                    | DECODER-BOARD       |     | SC 1.769.421.00 |

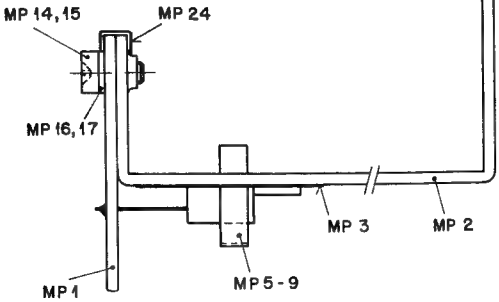
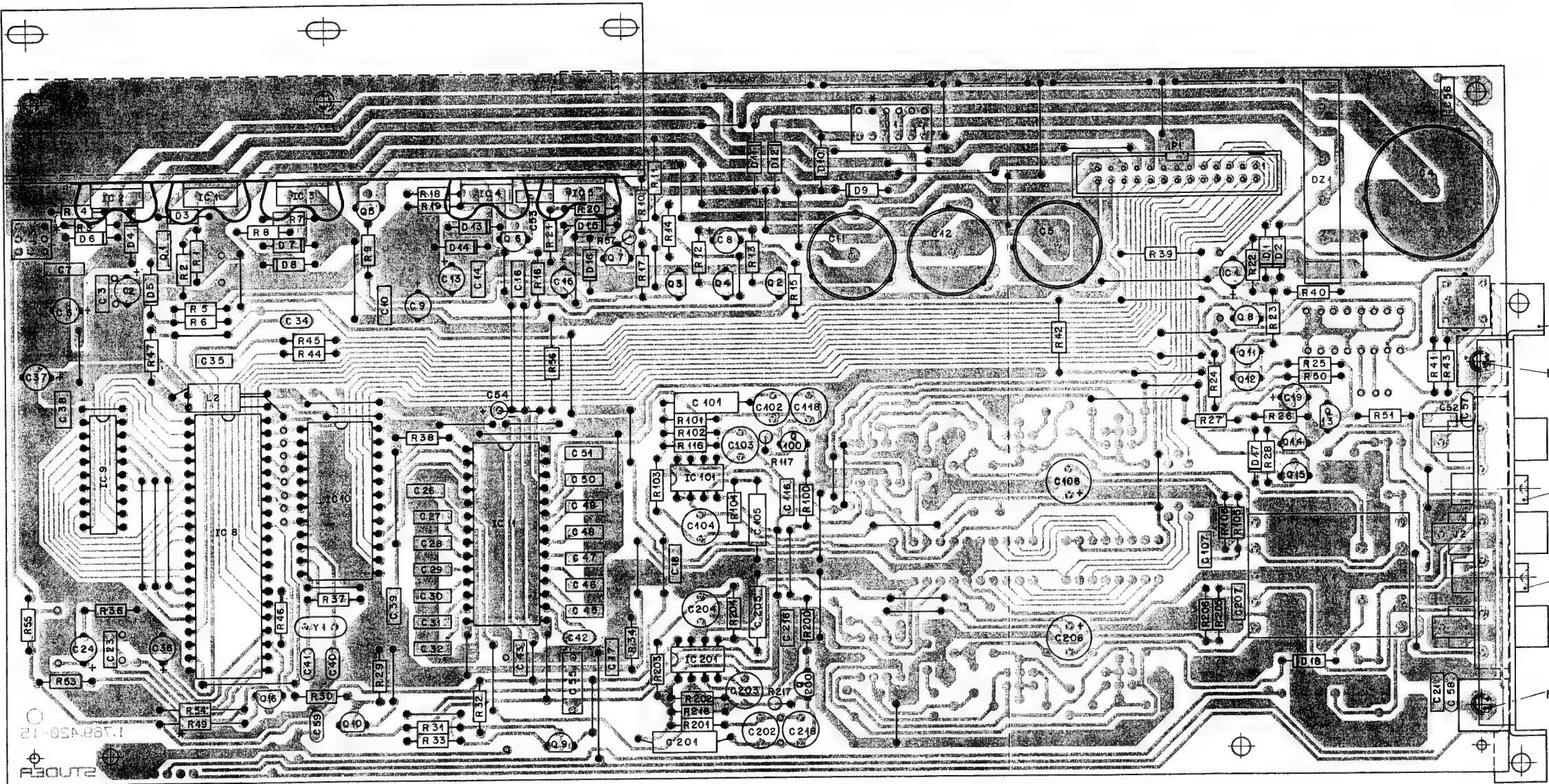


| IND.       | PDS-ND     | PART ND    | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF. |
|------------|------------|------------|-------|-----------------------------|--------|
| C....207   | 59-06-0102 |            | 1 n   |                             |        |
| C....216   | 59-06-0221 |            | 22 n  |                             |        |
| C....219   | 59-05-1582 |            | 6.8 n | 1.4                         |        |
| D....+1    | 50-06-0125 | 1N4448     |       |                             |        |
| D....+2    | 50-06-0125 | 1N4448     |       |                             |        |
| D....+3    | 50-06-0122 | 1N4001     |       |                             |        |
| D....+4    | 50-06-0122 | 1N4001     |       |                             |        |
| D....+5    | 50-06-0125 | 1N4448     |       |                             |        |
| D....+6    | 50-06-0122 | 1N4001     |       |                             |        |
| D....+7    | 50-06-0122 | 1N4001     |       |                             |        |
| D....+8    | 50-06-0122 | 1N4001     |       |                             |        |
| D....+9    | 50-06-0122 | 1N4001     |       |                             |        |
| D....+10   | 50-06-0122 | 1N4001     |       |                             |        |
| D....+11   | 50-06-0122 | 1N4001     |       |                             |        |
| D....+12   | 50-06-0122 | 1N4001     |       |                             |        |
| D....+13   | 50-06-0122 | 1N4001     |       |                             |        |
| D....+14   | 50-06-0122 | 1N4001     |       |                             |        |
| D....+15   | 50-06-0122 | 1N4001     |       |                             |        |
| D....+16   | 50-06-0122 | 1N4001     |       |                             |        |
| D....+17   | 50-06-0125 | 1N4448     |       |                             |        |
| D....+18   | 50-06-0125 | 1N4448     |       |                             |        |
| UZ....+1   | 70-11-0235 |            |       | B80 C1700/2200              |        |
| IC....+1   | 50-10-0104 | LM317      |       | P5+. VOLTAGE-REGULATOR      |        |
| IC....+2   | 50-10-0104 | LM317      |       | P5+. VOLTAGE-REGULATOR      |        |
| IC....+3   | 50-10-0105 | LM337      |       | NEG. VOLTAGE-REGULATOR      |        |
| IC....+4   | 50-10-0104 | LM317      |       | P5+. VOLTAGE-REGULATOR      |        |
| IC....+5   | 50-10-0105 | LM337      |       | NEG. VOLTAGE-REGULATOR      |        |
| IC....+6   | 50-11-0118 | 5AA 7210   |       | DECODER                     | Ph     |
| IC....+7   | 50-11-0134 | TMS 4616   |       | 16-BIT D-RAM                | TI     |
| IC....+10  | 50-11-0119 | 5AA 7220B  |       | DIGITAL FILTER              | Ph     |
| IC....+11  | 50-19-0105 | 70A 154A-1 |       | 16-BIT DUAL-DAC             | Ph     |
| IC....+191 | 50-06-0105 | NE 5552 N  |       | OP-AMP                      | Sig    |
| IC....+201 | 50-06-0105 | NE 5552 N  |       | OP-AMP                      |        |



|          |    |         |                           |      |                 |
|----------|----|---------|---------------------------|------|-----------------|
| ① 290488 | LC | ① 64088 | ② 241088                  | ③ .. | ④ ..            |
|          |    |         | B 126 COMPACT DISC PLAYER |      | PAGE 3 OF 3     |
| STUDER   |    |         | DECODER-BOARD             |      | SC 1.769.421.00 |

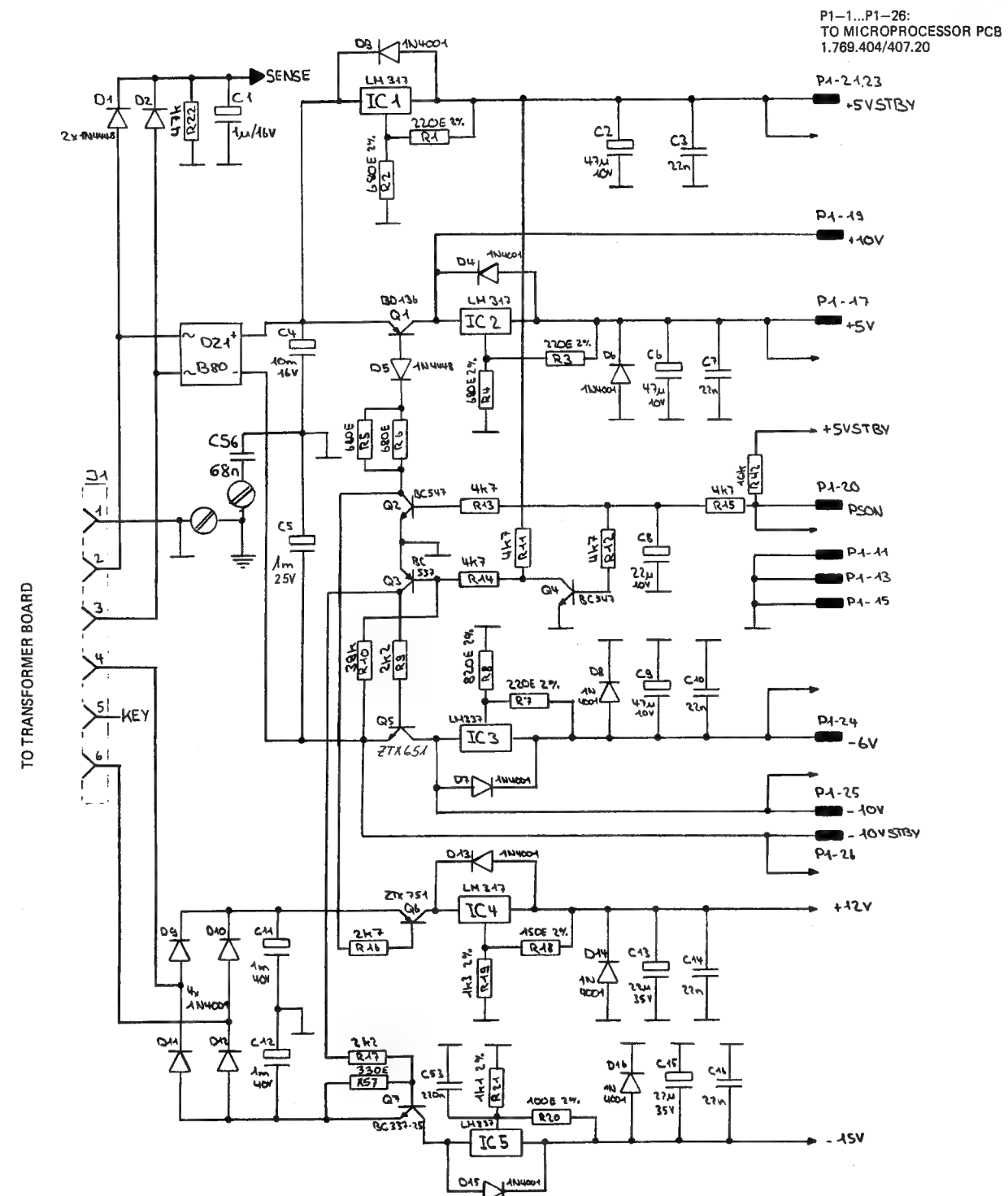
DECODER PCB 1.769.421.00 B126



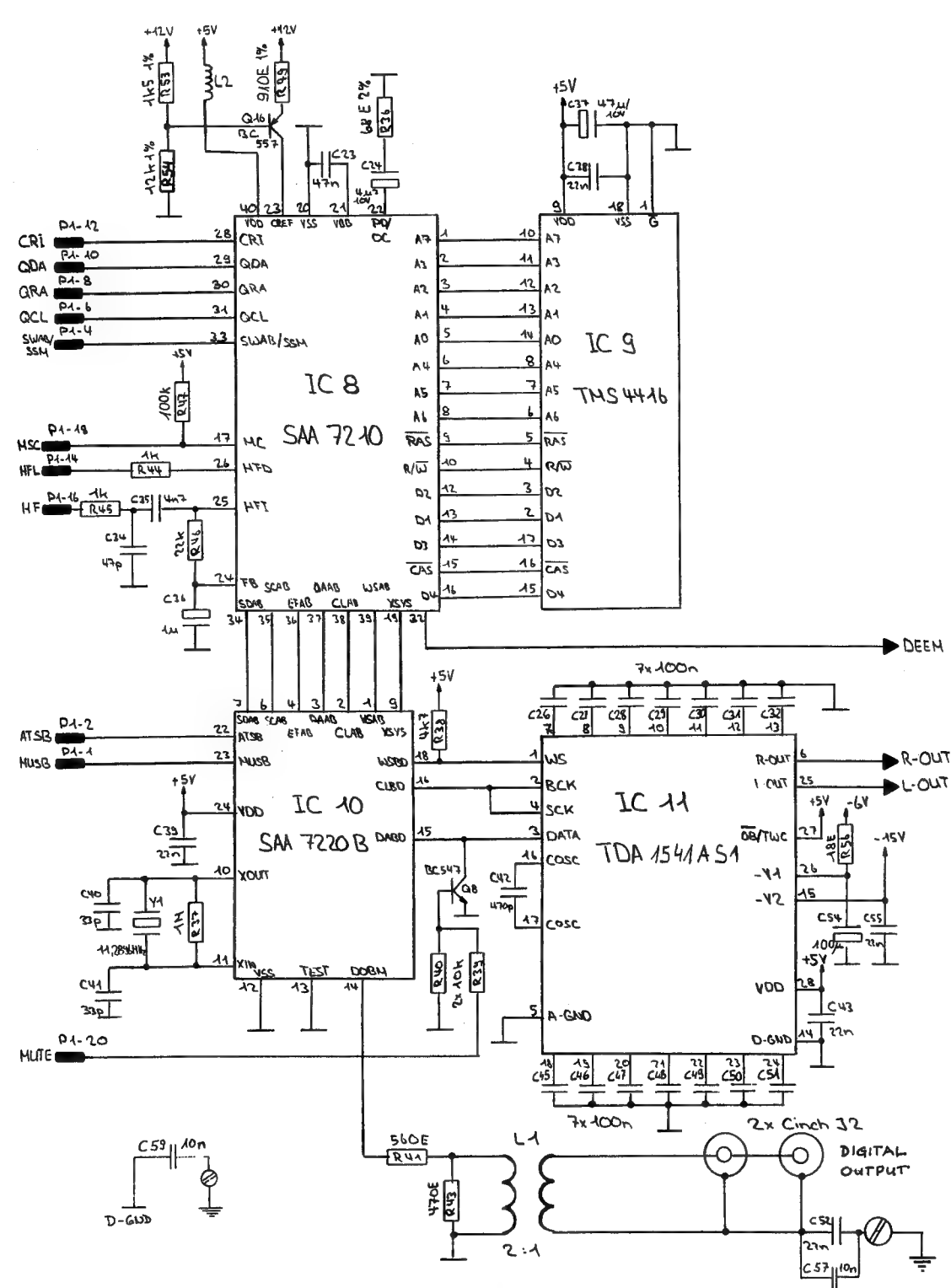
| IND.      | POS.-NO.     | PART NO. | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF. | IND.     | POS.-NO.   | PART NO.  | VALUE                   | SPECIFICATIONS / EQUIVALENT    | MANUF.   | IND.       | POS.-NO. | PART NO. | VALUE     | SPECIFICATIONS / EQUIVALENT | MANUF. | IND. | POS.-NO.  | PART NO.   | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF. |
|-----------|--------------|----------|-------|-----------------------------|--------|----------|------------|-----------|-------------------------|--------------------------------|----------|------------|----------|----------|-----------|-----------------------------|--------|------|-----------|------------|-------|-----------------------------|--------|
| J.....1   | 36-01-0216   | 6 PIN    |       | CIS STRIP                   |        | Q.....1  | 50-03-0510 | BD 136-1b | PNP, 45V, 1.5A          |                                | R.....18 | 57-11-3151 | 150      | 2k       | R.....57  | 57-11-3331                  | 330    |      | R.....57  | 57-11-3331 | 330   |                             |        |
| J.....2   | 34-01-0208   | 1% POL   |       | CINCH                       |        | Q.....2  | 50-03-0436 | UC 5478   | BC 2378, UC 5508        |                                | R.....19 | 57-11-3132 | 1.5 k    | 2k       | R.....100 | 57-11-5106                  | 10 M   | 10k  | R.....100 | 57-11-5106 | 10 M  | 10k                         |        |
| J.....3   | 34-01-0207   | 3 PIN    |       | CIS STRIP                   |        | Q.....3  | 50-03-0436 | UC 5478   | BC 2378, UC 5508        |                                | R.....20 | 57-11-3101 | 100      | 2k       | R.....101 | 57-11-3112                  | 1.1 k  | 1k   | R.....101 | 57-11-3112 | 1.1 k | 1k                          |        |
| K.....1   | 56-04-0144   | 24V 40U  |       | PCB RELAYS                  |        | Q.....4  | 50-03-0340 | UC 337-25 | NPN                     |                                | R.....21 | 57-11-3112 | 1.1 k    | 2k       | R.....102 | 57-11-3202                  | 2 k    | 1k   | R.....102 | 57-11-3202 | 2 k   | 1k                          |        |
| L.....1   | 1.769.420.04 |          |       | DOBN-TRANSFORMER            |        | Q.....5  | 50-03-0523 | ZTA 751   | NPN                     |                                | R.....22 | 57-11-3473 | 47 k     |          | R.....103 | 57-11-3242                  | 2.4 k  | 1k   | R.....103 | 57-11-3242 | 2.4 k | 1k                          |        |
| L.....2   | 62-01-0115   |          |       |                             |        | Q.....6  | 50-03-0352 | UC 337-25 | NPN                     |                                | R.....23 | 57-11-3103 | 10 k     |          | R.....104 | 57-11-3242                  | 2.4 k  | 1k   | R.....104 | 57-11-3242 | 2.4 k | 1k                          |        |
| MP.....1  | 1.769.420.14 |          |       | DECODER-PCB                 | St     | Q.....7  | 50-03-0436 | UC 5478   | BC 2378, UC 5508        |                                | R.....24 | 57-11-3394 | 390 k    |          | R.....105 | 57-11-3103                  | 10 k   |      | R.....105 | 57-11-3103 | 10 k  |                             |        |
| MP.....2  | 1.769.420.15 |          |       | DECODER-PCB                 | St     | Q.....8  | 50-03-0436 | UC 5478   | BC 2378, UC 5508        |                                | R.....25 | 57-11-3103 | 10 k     |          | R.....106 | 57-11-3103                  | 10 k   |      | R.....106 | 57-11-3103 | 10 k  |                             |        |
| MP.....3  | 1.769.420.01 |          |       | HEAT-SINK                   | St     | Q.....9  | 50-03-0515 | UC 5478   | BC 2378, UC 5508        |                                | R.....26 | 57-11-3473 | 47 k     |          | R.....107 | 57-11-3103                  | 10 k   |      | R.....107 | 57-11-3103 | 10 k  |                             |        |
| MP.....4  | 1.769.420.02 |          |       | THERMOPLASTIC               | St     | Q.....10 | 50-03-0436 | UC 5478   | BC 2378, UC 5508        |                                | R.....27 | 57-11-3334 | 330 k    |          | R.....108 | 57-11-3103                  | 10 k   |      | R.....108 | 57-11-3103 | 10 k  |                             |        |
| MP.....5  | 1.769.420.03 |          |       | CINCH-SINK                  |        | Q.....11 | 50-03-0515 | UC 5478   | BC 2378, UC 5508        |                                | R.....28 | 57-11-3473 | 47 k     |          | R.....109 | 57-11-3103                  | 10 k   |      | R.....109 | 57-11-3103 | 10 k  |                             |        |
| MP.....6  | 50-20-2003   |          |       | CLIP TO 220                 |        | Q.....12 | 50-03-0436 | UC 5478   | BC 2378, UC 5508        |                                | R.....29 | 57-11-3103 | 10 k     |          | R.....110 | 57-11-3103                  | 10 k   |      | R.....110 | 57-11-3103 | 10 k  |                             |        |
| MP.....7  | 50-20-2003   |          |       | CLIP TO 220                 |        | Q.....13 | 50-03-0436 | UC 5478   | BC 2378, UC 5508        |                                | R.....30 | 57-11-3103 | 10 k     |          | R.....111 | 57-11-3103                  | 10 k   |      | R.....111 | 57-11-3103 | 10 k  |                             |        |
| MP.....8  | 50-20-2003   |          |       | CLIP TO 220                 |        | Q.....14 | 50-03-0515 | UC 5478   | BC 2378, UC 5508        |                                | R.....31 | 57-11-3103 | 10 k     |          | R.....112 | 57-11-3103                  | 10 k   |      | R.....112 | 57-11-3103 | 10 k  |                             |        |
| MP.....9  | 50-20-2003   |          |       | CLIP TO 220                 |        | Q.....15 | 50-03-0515 | UC 5478   | BC 2378, UC 5508        |                                | R.....32 | 57-11-3273 | 27 k     |          | R.....113 | 57-11-3103                  | 10 k   |      | R.....113 | 57-11-3103 | 10 k  |                             |        |
| MP.....10 | 50-20-2003   |          |       | CLIP TO 220                 |        | Q.....16 | 50-03-0515 | UC 5478   | BC 2378, UC 5508        |                                | R.....33 | 57-11-3104 | 100 k    |          | R.....114 | 57-11-3103                  | 10 k   |      | R.....114 | 57-11-3103 | 10 k  |                             |        |
| MP.....11 | 50-20-2003   |          |       | CLIP TO 220                 |        | Q.....17 | 50-03-0216 | J 111     | NO-PET, Rds on < 30 ohm | SIX                            | R.....34 | 57-11-3229 | 2.2 k    |          | R.....115 | 57-11-3103                  | 10 k   |      | R.....115 | 57-11-3103 | 10 k  |                             |        |
| MP.....12 | 50-20-2003   |          |       | CLIP TO 220                 |        | Q.....18 | 50-03-0216 | J 111     | NO-PET, Rds on < 30 ohm | SIX                            | R.....35 | 57-11-3680 | 1 k      | 2k       | R.....116 | 57-11-3103                  | 10 k   |      | R.....116 | 57-11-3103 | 10 k  |                             |        |
| MP.....13 | 50-20-2003   |          |       | CLIP TO 220                 |        | Q.....19 | 50-03-0216 | J 111     | NO-PET, Rds on < 30 ohm | SIX                            | R.....36 | 57-11-3109 | 1 k      |          | R.....117 | 57-11-3103                  | 10 k   |      | R.....117 | 57-11-3103 | 10 k  |                             |        |
| MP.....14 | 21-26-0354   |          |       | SCREW, CYLIN.-HEAD, M 3x0.6 |        | Q.....20 | 50-03-0216 | J 111     | NO-PET, Rds on < 30 ohm | SIX                            | R.....37 | 57-11-3472 | 4.7 k    |          | R.....118 | 57-11-3103                  | 10 k   |      | R.....118 | 57-11-3103 | 10 k  |                             |        |
| MP.....15 | 21-26-0354   |          |       | SCREW, CYLIN.-HEAD, M 3x0.6 |        | R.....1  | 57-11-3221 | 220       | 2k                      |                                | R.....38 | 57-11-3103 | 10 k     |          | R.....119 | 57-11-3103                  | 10 k   |      | R.....119 | 57-11-3103 | 10 k  |                             |        |
| MP.....16 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        | R.....2  | 57-11-3681 | 680       | 2k                      | see all resistors 5% .25w eon  | R.....39 | 57-11-3103 | 10 k     |          | R.....120 | 57-11-3103                  | 10 k   |      | R.....120 | 57-11-3103 | 10 k  |                             |        |
| MP.....17 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        | R.....3  | 57-11-3221 | 220       | 2k                      | general purpose eon            | R.....40 | 57-11-3103 | 10 k     |          | R.....121 | 57-11-3103                  | 10 k   |      | R.....121 | 57-11-3103 | 10 k  |                             |        |
| MP.....18 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        | R.....4  | 57-11-3681 | 680       | 2k                      | see unless otherwise noted eon | R.....41 | 57-11-3561 | 560      |          | R.....122 | 57-11-3103                  | 10 k   |      | R.....122 | 57-11-3103 | 10 k  |                             |        |
| MP.....19 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        | R.....5  | 57-11-3681 | 680       | 2k                      |                                | R.....42 | 57-11-3103 | 10 k     |          | R.....123 | 57-11-3103                  | 10 k   |      | R.....123 | 57-11-3103 | 10 k  |                             |        |
| MP.....20 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        | R.....6  | 57-11-3681 | 680       | 2k                      |                                | R.....43 | 57-11-3471 | 470      |          | R.....124 | 57-11-3103                  | 10 k   |      | R.....124 | 57-11-3103 | 10 k  |                             |        |
| MP.....21 | 21-26-0354   |          |       | SCREW, CYLIN.-HEAD, M 3x0.6 |        | R.....7  | 57-11-3221 | 220       | 2k                      |                                | R.....44 | 57-11-3102 | 1 k      |          | R.....125 | 57-11-3103                  | 10 k   |      | R.....125 | 57-11-3103 | 10 k  |                             |        |
| MP.....22 | 21-26-0354   |          |       | SCREW, CYLIN.-HEAD, M 3x0.6 |        | R.....8  | 57-11-3221 | 220       | 2k                      |                                | R.....45 | 57-11-3102 | 1 k      |          | R.....126 | 57-11-3103                  | 10 k   |      | R.....126 | 57-11-3103 | 10 k  |                             |        |
| MP.....23 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        | R.....9  | 57-11-3221 | 220       | 2k                      |                                | R.....46 | 57-11-3223 | 22 k     |          | R.....127 | 57-11-3103                  | 10 k   |      | R.....127 | 57-11-3103 | 10 k  |                             |        |
| MP.....24 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        | R.....10 | 57-11-3222 | 2.2 k     | 2k                      |                                | R.....47 | 57-11-3104 | 100 k    |          | R.....128 | 57-11-3103                  | 10 k   |      | R.....128 | 57-11-3103 | 10 k  |                             |        |
| MP.....25 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        | R.....11 | 57-11-3472 | 4.7 k     | 4.7 k                   |                                | R.....48 | 57-11-3751 | 750      | 1k       | R.....129 | 57-11-3103                  | 10 k   |      | R.....129 | 57-11-3103 | 10 k  |                             |        |
| MP.....26 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        | R.....12 | 57-11-3472 | 4.7 k     | 4.7 k                   |                                | R.....49 | 57-11-3911 | 910      | 1k       | R.....130 | 57-11-3103                  | 10 k   |      | R.....130 | 57-11-3103 | 10 k  |                             |        |
| MP.....27 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        | R.....13 | 57-11-3472 | 4.7 k     | 4.7 k                   |                                | R.....50 | 57-11-3104 | 100 k    |          | R.....131 | 57-11-3103                  | 10 k   |      | R.....131 | 57-11-3103 | 10 k  |                             |        |
| MP.....28 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        | R.....14 | 57-11-3472 | 4.7 k     | 4.7 k                   |                                | R.....51 | 57-11-3103 | 10 k     |          | R.....132 | 57-11-3103                  | 10 k   |      | R.....132 | 57-11-3103 | 10 k  |                             |        |
| MP.....29 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        | R.....15 | 57-11-3472 | 4.7 k     | 4.7 k                   |                                | R.....52 | 57-11-3152 | 1.5 k    | 1k       | R.....133 | 57-11-3103                  | 10 k   |      | R.....133 | 57-11-3103 | 10 k  |                             |        |
| MP.....30 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        | R.....16 | 57-11-3472 | 4.7 k     | 4.7 k                   |                                | R.....53 | 57-11-3123 | 12 k     | 1k       | R.....134 | 57-11-3103                  | 10 k   |      | R.....134 | 57-11-3103 | 10 k  |                             |        |
| MP.....31 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        | R.....17 | 57-11-3472 | 4.7 k     | 4.7 k                   |                                | R.....54 | 57-11-3123 | 12 k     | 1k       | R.....135 | 57-11-3103                  | 10 k   |      | R.....135 | 57-11-3103 | 10 k  |                             |        |
| MP.....32 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        | R.....18 | 57-11-3472 | 4.7 k     | 4.7 k                   |                                | R.....55 | 57-11-3189 | 18 k     |          | R.....136 | 57-11-3103                  | 10 k   |      | R.....136 | 57-11-3103 | 10 k  |                             |        |
| MP.....33 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        | R.....19 | 57-11-3472 | 4.7 k     | 4.7 k                   |                                | R.....56 | 57-11-3189 | 18 k     |          | R.....137 | 57-11-3103                  | 10 k   |      | R.....137 | 57-11-3103 | 10 k  |                             |        |
| MP.....34 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        | R.....20 | 57-11-3472 | 4.7 k     | 4.7 k                   |                                |          |            |          |          | R.....138 | 57-11-3103                  | 10 k   |      | R.....138 | 57-11-3103 | 10 k  |                             |        |
| MP.....35 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        |          |            |           |                         |                                |          |            |          |          | R.....139 | 57-11-3103                  | 10 k   |      | R.....139 | 57-11-3103 | 10 k  |                             |        |
| MP.....36 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        |          |            |           |                         |                                |          |            |          |          | R.....140 | 57-11-3103                  | 10 k   |      | R.....140 | 57-11-3103 | 10 k  |                             |        |
| MP.....37 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        |          |            |           |                         |                                |          |            |          |          | R.....141 | 57-11-3103                  | 10 k   |      | R.....141 | 57-11-3103 | 10 k  |                             |        |
| MP.....38 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        |          |            |           |                         |                                |          |            |          |          | R.....142 | 57-11-3103                  | 10 k   |      | R.....142 | 57-11-3103 | 10 k  |                             |        |
| MP.....39 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        |          |            |           |                         |                                |          |            |          |          | R.....143 | 57-11-3103                  | 10 k   |      | R.....143 | 57-11-3103 | 10 k  |                             |        |
| MP.....40 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        |          |            |           |                         |                                |          |            |          |          | R.....144 | 57-11-3103                  | 10 k   |      | R.....144 | 57-11-3103 | 10 k  |                             |        |
| MP.....41 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        |          |            |           |                         |                                |          |            |          |          | R.....145 | 57-11-3103                  | 10 k   |      | R.....145 | 57-11-3103 | 10 k  |                             |        |
| MP.....42 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        |          |            |           |                         |                                |          |            |          |          | R.....146 | 57-11-3103                  | 10 k   |      | R.....146 | 57-11-3103 | 10 k  |                             |        |
| MP.....43 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        |          |            |           |                         |                                |          |            |          |          | R.....147 | 57-11-3103                  | 10 k   |      | R.....147 | 57-11-3103 | 10 k  |                             |        |
| MP.....44 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        |          |            |           |                         |                                |          |            |          |          | R.....148 | 57-11-3103                  | 10 k   |      | R.....148 | 57-11-3103 | 10 k  |                             |        |
| MP.....45 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        |          |            |           |                         |                                |          |            |          |          | R.....149 | 57-11-3103                  | 10 k   |      | R.....149 | 57-11-3103 | 10 k  |                             |        |
| MP.....46 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        |          |            |           |                         |                                |          |            |          |          | R.....150 | 57-11-3103                  | 10 k   |      | R.....150 | 57-11-3103 | 10 k  |                             |        |
| MP.....47 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        |          |            |           |                         |                                |          |            |          |          | R.....151 | 57-11-3103                  | 10 k   |      | R.....151 | 57-11-3103 | 10 k  |                             |        |
| MP.....48 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        |          |            |           |                         |                                |          |            |          |          | R.....152 | 57-11-3103                  | 10 k   |      | R.....152 | 57-11-3103 | 10 k  |                             |        |
| MP.....49 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        |          |            |           |                         |                                |          |            |          |          | R.....153 | 57-11-3103                  | 10 k   |      | R.....153 | 57-11-3103 | 10 k  |                             |        |
| MP.....50 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        |          |            |           |                         |                                |          |            |          |          | R.....154 | 57-11-3103                  | 10 k   |      | R.....154 | 57-11-3103 | 10 k  |                             |        |
| MP.....51 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        |          |            |           |                         |                                |          |            |          |          | R.....155 | 57-11-3103                  | 10 k   |      | R.....155 | 57-11-3103 | 10 k  |                             |        |
| MP.....52 | 21-26-0354   |          |       | SERRAL LOCK WASHER, D 6/3x2 |        |          |            |           |                         |                                |          |            |          |          | R.....156 | 57-11-3103                  | 10 k   |      | R.....156 | 57-11-3103 | 10 k  |                             |        |
| MP.....53 | 21-26-0354   |          |       | WASHER, D 5x5/3x2           |        |          |            |           |                         |                                |          |            |          |          |           |                             |        |      |           |            |       |                             |        |



DECODER PCB 1.769.422.00 B226-S



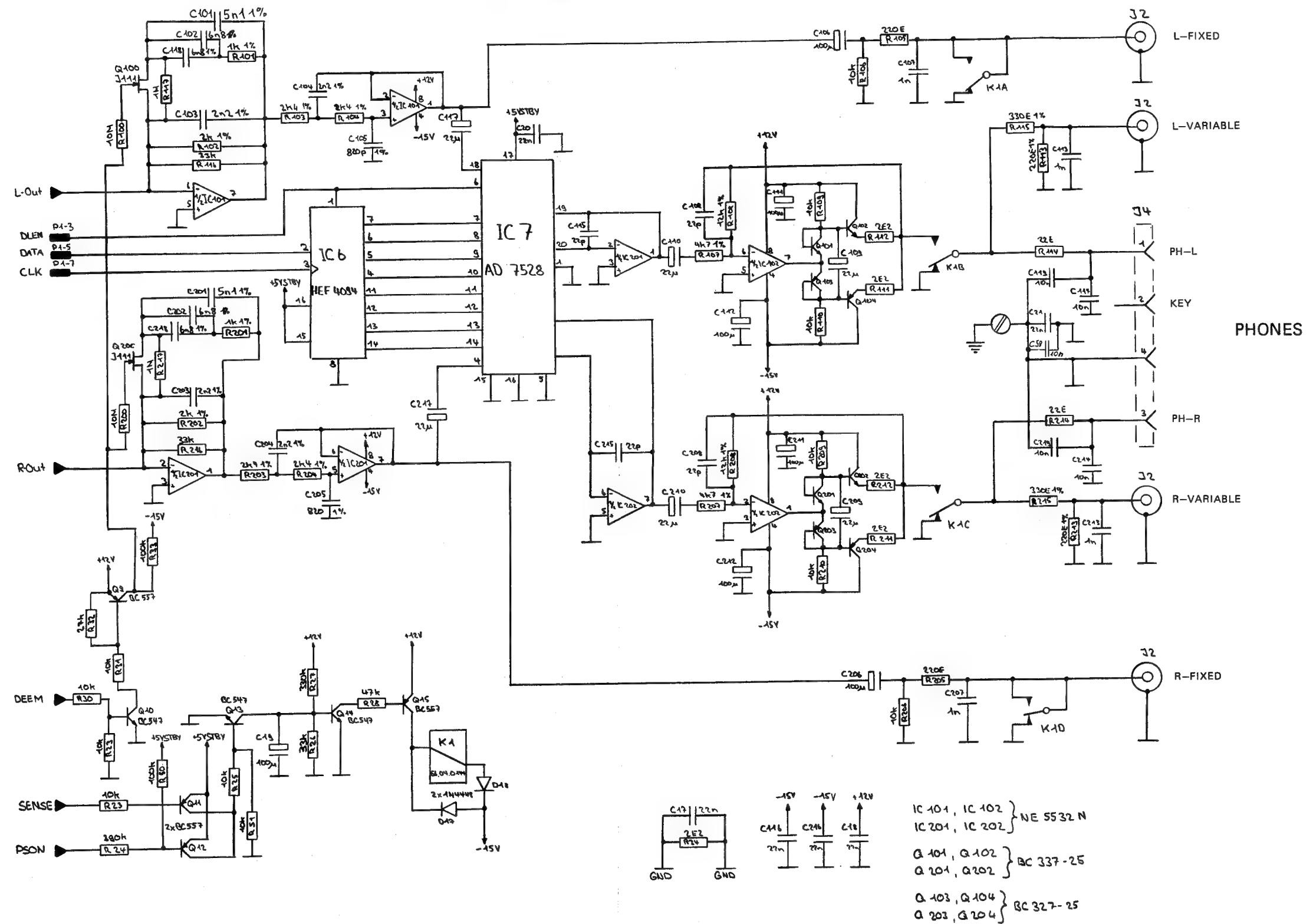
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TO MICROPROCESSOR PCB  
1.769.404/407.20



|             |                            |                  |              |             |
|-------------|----------------------------|------------------|--------------|-------------|
| ① 180488 LC | ② 61088 M.88               | ③ 241088 S.Wicki | ④ ..         | ⑤ ..        |
| LC          | B226-S COMPACT DISC PLAYER | SC               | 1.769.422.00 | PAGE 1 OF 3 |
| STUDER      | DECODER-BOARD              |                  |              |             |

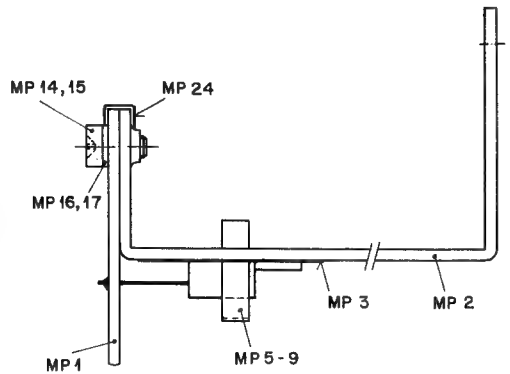
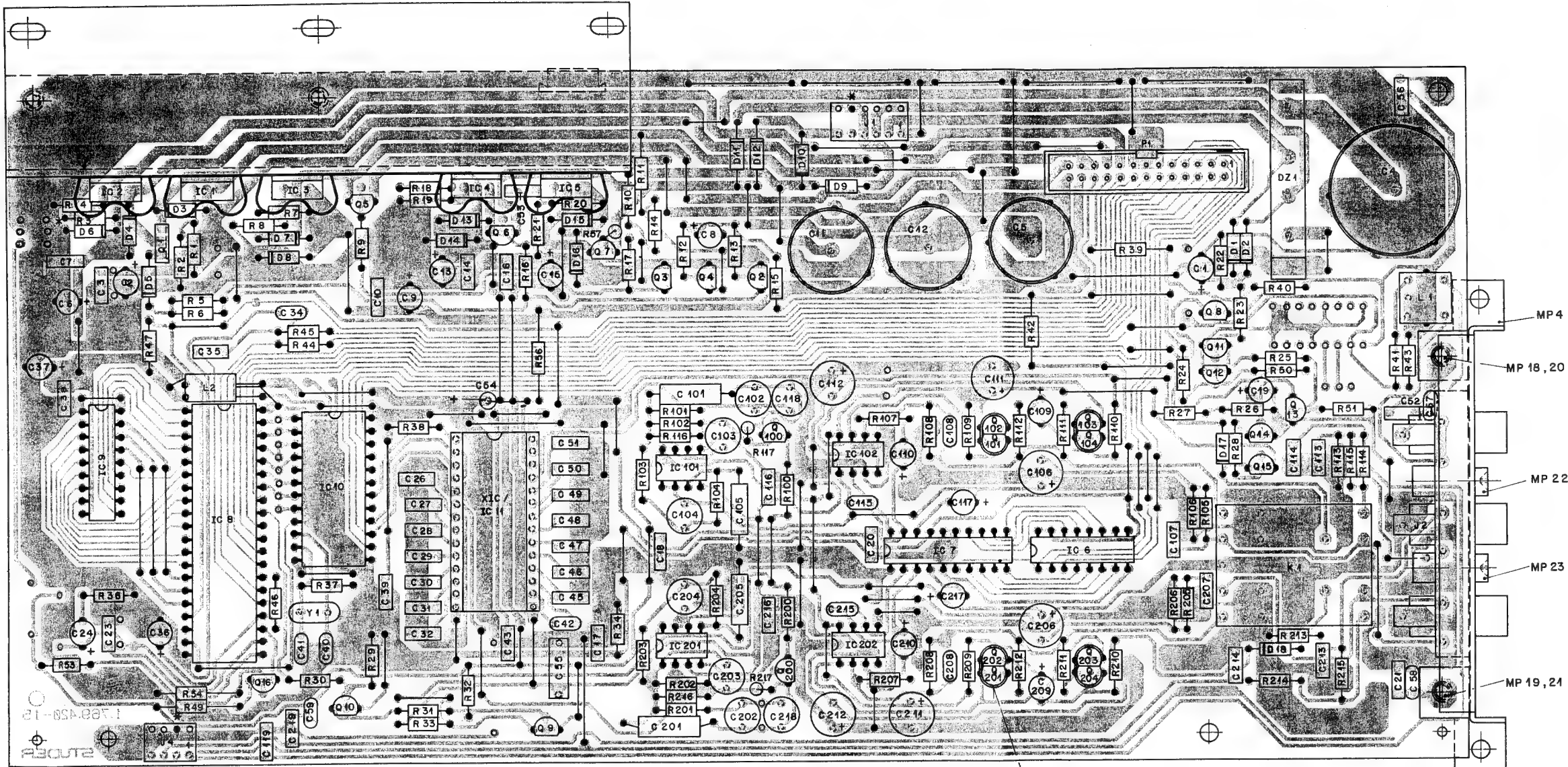
|             |                            |                  |              |             |
|-------------|----------------------------|------------------|--------------|-------------|
| ① 180488 LC | ② 61088 M.88               | ③ 241088 S.Wicki | ④ ..         | ⑤ ..        |
| LC          | B226-S COMPACT DISC PLAYER | SC               | 1.769.422.00 | PAGE 2 OF 3 |
| STUDER      | DECODER-BOARD              |                  |              |             |

DECODER PCB 1.769.422.00 B226-S





DECODER PCB 1.769.422.00 B226-S



| IND. | POS.NO.  | PART NO.   | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF.                    |
|------|----------|------------|-------|-----------------------------|---------------------------|
| (00) | C.....1  | 59.22.8109 | 1 u   | 10V + el                    | all capacitors 10V / 50 V |
|      | C.....2  | 59.22.3470 | 47 u  | 10V + el                    | otherwise noted           |
|      | C.....3  | 59.26.0223 | 22 n  | 10V + el                    |                           |
|      | C.....4  | 59.22.4103 | 10 m  | 10V + el                    |                           |
|      | C.....5  | 59.22.4222 | 2+2 m | 10V + el                    |                           |
|      | C.....6  | 59.22.5102 | 1 m   | 25V + el                    |                           |
|      | C.....7  | 59.22.3470 | 47 u  | 10V + el                    |                           |
|      | C.....8  | 59.06.0223 | 22 n  | 10V + el                    |                           |
|      | C.....9  | 59.22.3470 | 47 u  | 10V + el                    |                           |
|      | C.....10 | 59.06.0223 | 22 n  | 10V + el                    |                           |
| (03) | C.....11 | 59.22.6102 | 1 m   | 40V + el                    |                           |
|      | C.....12 | 59.22.6102 | 1 m   | 40V + el                    |                           |
|      | C.....13 | 59.22.5220 | 22 n  | 25V + el                    |                           |
|      | C.....14 | 59.06.0223 | 22 n  | 10V + el                    |                           |
|      | C.....15 | 59.22.5220 | 22 n  | 25V + el                    |                           |
|      | C.....16 | 59.06.0223 | 22 n  | 10V + el                    |                           |
|      | C.....17 | 59.06.0223 | 22 n  | 10V + el                    |                           |
|      | C.....18 | 59.06.0223 | 22 n  | 10V + el                    |                           |
|      | C.....19 | 59.22.3101 | 100 n | 10V + el                    |                           |
|      | C.....20 | 59.06.0223 | 22 n  | 10V + el                    |                           |
| (00) | C.....21 | 59.06.0223 | 22 n  | 10V + el                    |                           |
|      | C.....22 | 59.06.0223 | 22 n  | 10V + el                    |                           |
|      | C.....23 | 59.06.0473 | 47 n  | 10V + sal                   |                           |
|      | C.....24 | 59.26.1179 | 4+7 u | 10V + sal                   |                           |
|      | C.....25 | 59.06.0104 | 100 n | 10V + sal                   |                           |
|      | C.....26 | 59.06.0104 | 100 n | 10V + sal                   |                           |
|      | C.....27 | 59.06.0104 | 100 n | 10V + sal                   |                           |
|      | C.....28 | 59.06.0104 | 100 n | 10V + sal                   |                           |
|      | C.....29 | 59.06.0104 | 100 n | 10V + sal                   |                           |
|      | C.....30 | 59.06.0104 | 100 n | 10V + sal                   |                           |
| (04) | C.....31 | 59.06.0104 | 100 n | 10V + sal                   |                           |
|      | C.....32 | 59.06.0104 | 100 n | 10V + sal                   |                           |
|      | C.....33 | 59.06.0104 | 100 n | 10V + sal                   |                           |
|      | C.....34 | 59.06.0104 | 100 n | 10V + sal                   |                           |
|      | C.....35 | 59.06.0104 | 100 n | 10V + sal                   |                           |
|      | C.....36 | 59.06.0104 | 100 n | 10V + sal                   |                           |
|      | C.....37 | 59.06.0104 | 100 n | 10V + sal                   |                           |
|      | C.....38 | 59.06.0104 | 100 n | 10V + sal                   |                           |
|      | C.....39 | 59.06.0104 | 100 n | 10V + sal                   |                           |
|      | C.....40 | 59.06.0104 | 100 n | 10V + sal                   |                           |

| IND. | POS.NO.  | PART NO.   | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF. |
|------|----------|------------|-------|-----------------------------|--------|
| (00) | C.....34 | 59.34.2470 | 47 p  | cer                         |        |
|      | C.....35 | 59.06.0472 | 4+7 n | cer                         |        |
|      | C.....36 | 59.22.8109 | 1 u   | 10V + el                    |        |
|      | C.....37 | 59.22.3470 | 47 u  | 10V + el                    |        |
|      | C.....38 | 59.06.0223 | 22 n  | 10V + el                    |        |
|      | C.....39 | 59.06.0223 | 22 n  | 10V + el                    |        |
|      | C.....40 | 59.34.2330 | 33 p  | cer                         |        |
|      | C.....41 | 59.34.2330 | 33 p  | cer                         |        |
|      | C.....42 | 59.34.2470 | 47 p  | cer                         |        |
|      | C.....43 | 59.06.0223 | 22 n  | 10V + el                    |        |
| (03) | C.....44 | 59.06.0104 | 100 n | 10V + el                    |        |
|      | C.....45 | 59.06.0104 | 100 n | 10V + el                    |        |
|      | C.....46 | 59.06.0104 | 100 n | 10V + el                    |        |
|      | C.....47 | 59.06.0104 | 100 n | 10V + el                    |        |
|      | C.....48 | 59.06.0104 | 100 n | 10V + el                    |        |
|      | C.....49 | 59.06.0104 | 100 n | 10V + el                    |        |
|      | C.....50 | 59.06.0104 | 100 n | 10V + el                    |        |
|      | C.....51 | 59.06.0104 | 100 n | 10V + el                    |        |
|      | C.....52 | 59.06.0223 | 22 n  | 10V + el                    |        |
|      | C.....53 | 59.06.0223 | 22 n  | 10V + el                    |        |
| (00) | C.....54 | 59.25.3101 | 100 u | 10V + el                    |        |
|      | C.....55 | 59.31.6223 | 22 n  | 10V + el                    |        |
|      | C.....56 | 59.06.0223 | 22 n  | 10V + el                    |        |
|      | C.....57 | 59.32.3103 | 10 n  | cer                         |        |
|      | C.....58 | 59.32.3103 | 10 n  | cer                         |        |
|      | C.....59 | 59.12.7512 | 5+1 n | 1%                          |        |
|      | C.....60 | 59.05.1582 | 6+8 n | 1%                          |        |
|      | C.....61 | 59.05.1222 | 2+2 n | 1%                          |        |
|      | C.....62 | 59.05.1222 | 2+2 n | 1%                          |        |
|      | C.....63 | 59.12.7821 | 820 p | 1%                          |        |
| (04) | C.....64 | 59.22.4101 | 100 u | 10V + el                    |        |
|      | C.....65 | 59.06.0102 | 1 n   | cer                         |        |
|      | C.....66 | 59.34.2220 | 22 p  | cer                         |        |
|      | C.....67 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....68 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....69 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....70 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....71 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....72 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....73 | 59.22.5220 | 22 n  | 10V + el                    |        |

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| IND. | POS.NO.   | PART NO.   | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF. |
|------|-----------|------------|-------|-----------------------------|--------|
| (00) | C.....113 | 59.06.0102 | 1 n   | cer                         |        |
|      | C.....114 | 59.06.0103 | 10 n  | cer                         |        |
|      | C.....115 | 59.34.2220 | 22 p  | cer                         |        |
|      | C.....116 | 59.06.0223 | 22 n  | 10V + el                    |        |
|      | C.....117 | 59.22.5220 | 22 u  | 10V + el                    |        |
|      | C.....118 | 59.05.1582 | 6+8 n | 1%                          |        |
|      | C.....119 | 59.06.0103 | 10 n  | 1%                          |        |
|      | C.....120 | 59.12.7512 | 5+1 n | 1%                          |        |
|      | C.....121 | 59.05.1582 | 6+8 n | 1%                          |        |
|      | C.....122 | 59.05.1222 | 2+2 n | 1%                          |        |
| (03) | C.....123 | 59.05.1222 | 2+2 n | 1%                          |        |
|      | C.....124 | 59.12.7821 | 820 p | 1%                          |        |
|      | C.....125 | 59.22.4101 | 100 u | 10V + el                    |        |
|      | C.....126 | 59.06.0102 | 1 n   | cer                         |        |
|      | C.....127 | 59.34.2220 | 22 p  | cer                         |        |
|      | C.....128 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....129 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....130 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....131 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....132 | 59.22.5220 | 22 n  | 10V + el                    |        |
| (04) | C.....133 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....134 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....135 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....136 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....137 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....138 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....139 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....140 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....141 | 59.22.5220 | 22 n  | 10V + el                    |        |
|      | C.....142 | 59.22.5220 | 22 n  | 10V + el                    |        |

| IND. | POS.NO.   | PART NO.   | VALUE          | SPECIFICATIONS / EQUIVALENT         | MANUF. |
|------|-----------|------------|----------------|-------------------------------------|--------|
| (00) | D.....11  | 50.24.0122 | 1N4001         | POS. VOLTAGE-REGULATOR              |        |
|      | D.....12  | 50.24.0122 | 1N4001         | POS. VOLTAGE-REGULATOR              |        |
|      | D.....13  | 50.24.0122 | 1N4001         | NEG. VOLTAGE-REGULATOR              |        |
|      | D.....14  | 50.24.0122 | 1N4001         | NEG. VOLTAGE-REGULATOR              |        |
|      | D.....15  | 50.24.0122 | 1N4001         | POS. VOLTAGE-REGULATOR              |        |
|      | D.....16  | 50.24.0122 | 1N4001         | NEG. VOLTAGE-REGULATOR              |        |
|      | D.....17  | 50.24.0125 | 1N4448         | HEF 4094                            |        |
|      | D.....18  | 50.24.0125 | 1N4448         | HEF 4094                            |        |
|      | D.....19  | 50.24.0125 | 1N4448         | HEF 4094                            |        |
|      | D.....20  | 50.24.0125 | 1N4448         | HEF 4094                            |        |
| (03) | DZ.....1  | 70.01.0235 | B80 C3700/2200 | DIGITAL FILTER                      |        |
|      | IC.....1  | 50.10.0104 | LM317          | POS. VOLTAGE-REGULATOR              |        |
|      | IC.....2  | 50.10.0104 | LM317          | POS. VOLTAGE-REGULATOR              |        |
|      | IC.....3  | 50.10.0105 | LM317          | NEG. VOLTAGE-REGULATOR              |        |
|      | IC.....4  | 50.10.0104 | LM317          | POS. VOLTAGE-REGULATOR              |        |
|      | IC.....5  | 50.10.0105 | LM317          | NEG. VOLTAGE-REGULATOR              |        |
|      | IC.....6  | 50.07.0018 | NE 5532 N      | XR 5532 N DUAL OP-AMP               |        |
|      | IC.....7  | 50.07.0037 | AD 7528        | AD 7528                             |        |
|      | IC.....8  | 50.13.0118 | SAA 7210       | DECODER                             |        |
|      | IC.....9  | 50.14.0134 | TMS 4418       | 16Kx4 D-RAM                         |        |
| (04) | IC.....10 | 50.13.0119 | SAA 7220B      | DIGITAL FILTER                      |        |
|      | IC.....11 | 50.19.0108 | TDA 1541A      | 16-bit DUAL-DAC SELECTED VERSION S1 |        |
|      | IC.....12 | 50.09.0105 | NE 5532 N      | XR 5532 N DUAL OP-AMP               |        |
|      | IC.....13 | 50.09.0105 | NE 5532 N      | XR 5532 N DUAL OP-AMP               |        |
|      | IC.....14 | 50.09.0105 | NE 5532 N      | XR 5532 N DUAL OP-AMP               |        |
|      | IC.....15 | 50.09.0105 | NE 5532 N      | XR 5532 N DUAL OP-AMP               |        |
|      | IC.....16 | 50.09.0105 | NE 5532 N      | XR 5532 N DUAL OP-AMP               |        |
|      | IC.....17 | 50.09.0105 | NE 5532 N      | XR 5532 N DUAL OP-AMP               |        |
|      | IC.....18 | 50.09.0105 | NE 5532 N      | XR 5532 N DUAL OP-AMP               |        |
|      | IC.....19 | 50.09.0105 | NE 5532 N      | XR 5532 N DUAL OP-AMP               |        |

## DECODER PCB 1.769.422.00 B226-S



| IND. | POS.NO. | PART NO.     | VALUE     | SPECIFICATIONS / EQUIVALENT   | MANUF. | IND.    | POS.NO.    | PART NO. | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF. |
|------|---------|--------------|-----------|-------------------------------|--------|---------|------------|----------|-------|-----------------------------|--------|
| (03) | MP...1  | 1.769.420.15 |           | DECODER-PCB                   | St     | R...56  | 57.11.3180 | 18       |       |                             |        |
|      | MP...2  | 1.759.420.01 |           | HEAT-SINK                     | St     | R...57  | 57.11.3331 | 330      |       |                             |        |
|      | MP...3  | 1.769.420.02 |           | THERMOPLASTIC                 |        | R...100 | 57.11.5106 | 10 M     | 10%   |                             |        |
|      | MP...4  | 1.769.420.03 |           | CYNCH-SINK                    | St     | R...101 | 57.11.3112 | 1.1 k    | 1%    |                             |        |
|      | MP...5  | 50.20.2003   |           | CLIP TO 220                   |        | R...102 | 57.11.3202 | 2 k      | 1%    |                             |        |
|      | MP...6  | 50.20.2003   |           | CLIP TO 220                   |        | R...103 | 57.11.3242 | 2.4 k    | 1%    |                             |        |
|      | MP...7  | 50.20.2003   |           | CLIP TO 220                   |        | R...104 | 57.11.3242 | 2.4 k    | 1%    |                             |        |
|      | MP...8  | 50.20.2003   |           | CLIP TO 220                   |        | R...105 | 57.11.3221 | 220      |       |                             |        |
|      | MP...9  | 50.20.2003   |           | CLIP TO 220                   |        | R...106 | 57.11.3103 | 10 k     |       |                             |        |
|      | MP...10 | 50.20.2001   |           | 2 * TO 92 CLIP                |        | R...107 | 57.11.3472 | 4.7 k    | 1%    |                             |        |
|      | MP...11 | 50.20.2001   |           | 2 * TO 92 CLIP                |        | R...108 | 57.11.3123 | 12 k     | 1%    |                             |        |
|      | MP...12 | 50.20.2001   |           | 2 * TO 92 CLIP                |        | R...109 | 57.11.3103 | 10 k     |       |                             |        |
|      | MP...13 | 50.20.2001   |           | 2 * TO 92 CLIP                |        | R...110 | 57.11.3103 | 10 k     |       |                             |        |
|      | MP...14 | 21.26.0354   |           | SCREW, CYLIN.-HEAD, M 3.0 * 6 |        | R...111 | 57.11.3229 | 2.2      |       |                             |        |
|      | MP...15 | 21.26.0354   |           | SCREW, CYLIN.-HEAD, M 3.0 * 6 |        | R...112 | 57.11.3229 | 2.2      |       |                             |        |
| (00) | MP...16 | 24.16.1030   |           | WASHER, D 5.5/3.2             |        | R...113 | 57.11.3221 | 220      | 1%    |                             |        |
| (01) | MP...16 | 24.16.2030   |           | SERRAL LOCK WASHER, D 6/3.2   |        | R...114 | 57.11.3220 | 22       |       |                             |        |
| (00) | MP...17 | 24.16.1030   |           | WASHER, D 5.5/3.2             |        | R...115 | 57.11.3331 | 330      | 1%    |                             |        |
| (01) | MP...17 | 24.16.2030   |           | SERRAL LOCK WASHER, D 6/3.2   |        | R...116 | 57.11.3333 | 33 k     | 2%    |                             |        |
|      | MP...18 | 21.26.0354   |           | SCREW, CYLIN.-HEAD, M 3.0 * 6 |        | R...117 | 57.11.3105 | 1 M      | 10%   |                             |        |
|      | MP...19 | 21.26.0354   |           | SCREW, CYLIN.-HEAD, M 3.0 * 6 |        | R...200 | 57.11.5106 | 10 M     | 10%   |                             |        |
| (00) | MP...20 | 24.16.1030   |           | WASHER, D 5.5/3.2             |        | R...201 | 57.11.3112 | 1.1 k    | 1%    |                             |        |
| (01) | MP...20 | 24.16.2030   |           | SERRAL LOCK WASHER, D 6/3.2   |        | R...202 | 57.11.3202 | 2 k      | 1%    |                             |        |
| (00) | MP...21 | 24.16.1030   |           | WASHER, D 5.5/3.2             |        | R...203 | 57.11.3242 | 2.4 k    | 1%    |                             |        |
| (01) | MP...21 | 24.16.2030   |           | SERRAL LOCK WASHER, D 6/3.2   |        | R...204 | 57.11.3242 | 2.4 k    | 1%    |                             |        |
|      | MP...22 | 20.23.7355   |           | SCREW                         |        | R...205 | 57.11.3221 | 220      |       |                             |        |
|      | MP...23 | 20.23.7355   |           | SCREW                         |        | R...206 | 57.11.3103 | 10 k     |       |                             |        |
|      | MP...24 | 1.769.420.05 |           | CLIP                          |        | R...207 | 57.11.3472 | 4.7 k    | 1%    |                             |        |
|      | P...1   | 54.14.2003   | 26 PIN    | FLAT CABLE CONNECTOR          |        | R...208 | 57.11.3123 | 12 k     | 1%    |                             |        |
|      | U...1   | 50.03.0510   | BD 136-16 | PNP, 45V, 1.5A                |        | R...209 | 57.11.3103 | 10 k     |       |                             |        |
|      | U...2   | 50.03.0436   | BC 547B   | BC 237B, BC 550B              |        | R...210 | 57.11.3103 | 10 k     |       |                             |        |
|      | U...3   | 50.03.0515   | BC 557B   | BC 307B, BC 560B              |        | R...211 | 57.11.3229 | 2.2      |       |                             |        |
|      | U...4   | 50.03.0436   | BC 547B   | BC 237B, BC 550B              |        | R...212 | 57.11.3229 | 2.2      |       |                             |        |
| (02) | U...5   | 50.03.0340   | BC 337-25 | NPN                           |        | R...213 | 57.11.3221 | 220      | 1%    |                             |        |
| (02) | U...5   | 50.03.0523   | ZTX651    | NPN                           |        | R...214 | 57.11.3220 | 22       |       |                             |        |
|      |         |              |           |                               |        | R...215 | 57.11.3331 | 330      | 1%    |                             |        |
|      |         |              |           |                               |        | R...216 | 57.11.3333 | 33 k     | 2%    |                             |        |

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| IND.    | POS.NO.    | PART NO.  | VALUE | SPECIFICATIONS / EQUIVALENT       | MANUF. | IND.     | POS.NO.    | PART NO. | VALUE               | SPECIFICATIONS / EQUIVALENT | MANUF. |
|---------|------------|-----------|-------|-----------------------------------|--------|----------|------------|----------|---------------------|-----------------------------|--------|
| U...6   | 50.03.0352 | ZTX 751   |       | PNP                               |        | R...217  | 57.11.3105 | 1 M      | 10%                 |                             |        |
| U...7   | 50.03.0340 | BC 337-25 |       | NPN                               |        | XIC...11 | 53.33.0173 | 28 POL   |                     |                             |        |
| U...8   | 50.03.0436 | BC 547B   |       | BC 237B, BC 550B                  |        | Y...1    | 89.01.0559 |          | 11.2896 MHz, QUARTZ | PH                          |        |
| U...9   | 50.03.0515 | BC 557B   |       | BC 307B, BC 560B                  |        |          |            |          |                     |                             |        |
| U...10  | 50.03.0436 | BC 547B   |       | BC 237B, BC 550B                  |        |          |            |          |                     |                             |        |
| U...11  | 50.03.0515 | BC 557B   |       | BC 307B, BC 560B                  |        |          |            |          |                     |                             |        |
| U...12  | 50.03.0515 | BC 557B   |       | BC 307B, BC 560B                  |        |          |            |          |                     |                             |        |
| U...13  | 50.03.0436 | BC 547B   |       | BC 237B, BC 550B                  |        |          |            |          |                     |                             |        |
| U...14  | 50.03.0436 | BC 547B   |       | BC 237B, BC 550B                  |        |          |            |          |                     |                             |        |
| U...15  | 50.03.0515 | BC 557B   |       | BC 307B, BC 560B                  |        |          |            |          |                     |                             |        |
| U...16  | 50.03.0515 | BC 557B   |       | BC 307B, BC 560B                  |        |          |            |          |                     |                             |        |
| U...100 | 50.03.0216 | J 111     |       | ND-FET, Rds(on) < 30 ohm          | SIX    |          |            |          |                     |                             |        |
| U...101 | 50.03.0516 | BC 337-25 |       | NPN+1) see note below             |        |          |            |          |                     |                             |        |
| U...102 | 50.03.0516 | BC 337-25 |       | NPN+1) see note below             |        |          |            |          |                     |                             |        |
| U...103 | 50.03.0625 | BC 327-25 |       | PNP+2) see note below             |        |          |            |          |                     |                             |        |
| U...104 | 50.03.0625 | BC 327-25 |       | PNP+2) see note below             |        |          |            |          |                     |                             |        |
| U...200 | 50.03.0216 | J 111     |       | ND-FET, Rds(on) < 30 ohm          | SIX    |          |            |          |                     |                             |        |
| U...201 | 50.03.0516 | BC 337-25 |       | NPN+1) see note below             |        |          |            |          |                     |                             |        |
| U...202 | 50.03.0516 | BC 337-25 |       | NPN+1) see note below             |        |          |            |          |                     |                             |        |
| U...203 | 50.03.0625 | BC 327-25 |       | PNP+2) see note below             |        |          |            |          |                     |                             |        |
| U...204 | 50.03.0625 | BC 327-25 |       | PNP+2) see note below             |        |          |            |          |                     |                             |        |
| R...1   | 57.11.3221 | 220       |       | 2% *** all resistors 5% +25% ***  |        |          |            |          |                     |                             |        |
| R...2   | 57.11.3681 | 680       |       | 2% *** general purpose ***        |        |          |            |          |                     |                             |        |
| R...3   | 57.11.3221 | 220       |       | 2% *** unless otherwise noted *** |        |          |            |          |                     |                             |        |
| R...4   | 57.11.3681 | 680       |       |                                   |        |          |            |          |                     |                             |        |
| R...5   | 57.11.3681 | 680       |       |                                   |        |          |            |          |                     |                             |        |
| R...6   | 57.11.3681 | 680       |       |                                   |        |          |            |          |                     |                             |        |
| R...7   | 57.11.3221 | 220       |       | 2%                                |        |          |            |          |                     |                             |        |
| R...8   | 57.11.3681 | 820       |       | 2%                                |        |          |            |          |                     |                             |        |
| R...9   | 57.11.3222 | 2.2 k     |       |                                   |        |          |            |          |                     |                             |        |
| R...10  | 57.11.3393 | 39 k      |       |                                   |        |          |            |          |                     |                             |        |
| R...11  | 57.11.3472 | 4.7 k     |       |                                   |        |          |            |          |                     |                             |        |
| R...12  | 57.11.3472 | 4.7 k     |       |                                   |        |          |            |          |                     |                             |        |
| R...13  | 57.11.3472 | 4.7 k     |       |                                   |        |          |            |          |                     |                             |        |
| R...14  | 57.11.3472 | 4.7 k     |       |                                   |        |          |            |          |                     |                             |        |
| R...15  | 57.11.3472 | 4.7 k     |       |                                   |        |          |            |          |                     |                             |        |

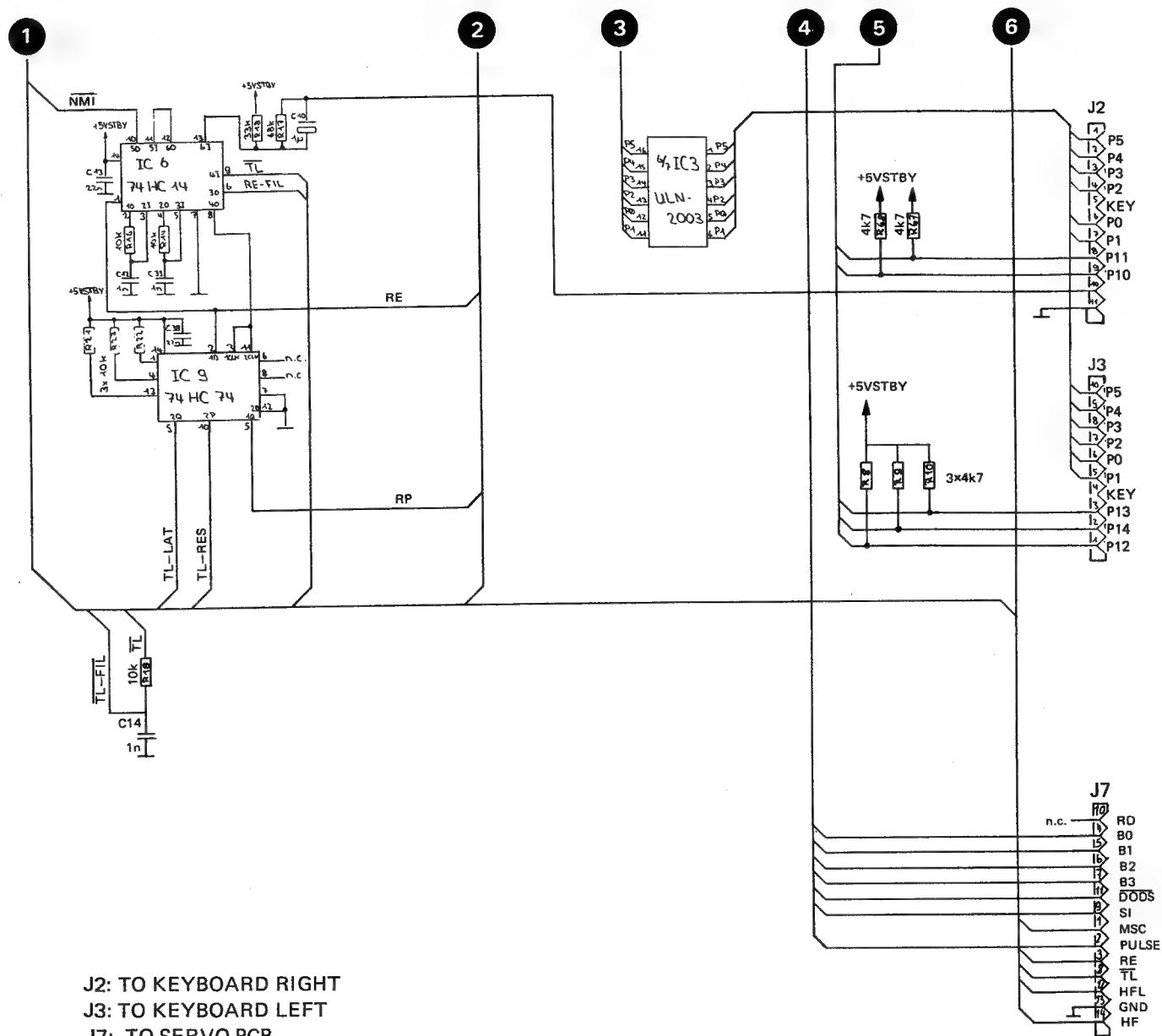
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| IND.   | POS.NO.    | PART NO.   | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF. |
|--------|------------|------------|-------|-----------------------------|--------|
| R...16 | 57.11.3272 | 2.7 k      |       |                             |        |
| R...17 | 57.11.3222 | 2.2 k      |       |                             |        |
| R...18 | 57.11.3151 | 150        |       | 2%                          |        |
| R...19 | 57.11.3122 | 1.3 k      |       | 2%                          |        |
| R...20 | 57.11.3101 | 100        |       | 2%                          |        |
| R...21 | 57.11.3112 | 1.1 k      |       | 2%                          |        |
| R...22 | 57.11.3473 | 47 k       |       |                             |        |
| R...23 | 57.11.3103 | 10 k       |       |                             |        |
| R...24 | 57.11.3394 | 390 k      |       |                             |        |
| R...25 | 57.11.3103 | 10 k       |       |                             |        |
| R...26 | 57.11.3333 | 33 k       |       |                             |        |
| R...27 | 57.11.3314 | 330 k      |       |                             |        |
| R...28 | 57.11.3473 | 47 k       |       |                             |        |
| R...29 | 57.11.3103 | 10 k       |       |                             |        |
| R...30 | 57.11.3103 | 10 k       |       |                             |        |
| R...31 | 57.11.3103 | 10 k       |       |                             |        |
| R...32 | 57.11.3273 | 27 k       |       |                             |        |
| R...33 | 57.11.3104 | 100 k      |       |                             |        |
| R...34 | 57.11.3229 | 2.2        |       |                             |        |
| R...35 | 57.11.3580 | 68         |       | 2%                          |        |
| R...36 | 57.11.3105 | 1 M        |       |                             |        |
| R...37 | 57.11.3472 | 4.7 k      |       |                             |        |
| R...38 | 57.11.3103 | 10 k       |       |                             |        |
| R...39 | 57.11.3103 | 10 k       |       |                             |        |
| R...40 | 57.11.3103 | 10 k       |       |                             |        |
| R...41 | 57.11.3561 | 560        |       |                             |        |
| R...42 | 57.11.3103 | 10 k       |       |                             |        |
| R...43 | 57.11.3471 | 470        |       |                             |        |
| R...44 | 57.11.3102 | 1 k        |       |                             |        |
| R...45 | 57.11.3102 | 1 k        |       |                             |        |
| R...46 | 57.11.3223 | 22 k       |       |                             |        |
| R...47 | 57.11.3104 | 100 k      |       |                             |        |
| (00)   | R...49     | 57.11.3751 | 750   | 1%                          |        |
| (03)   | R...49     | 57.11.3911 | 910   | 1%                          |        |
|        | R...50     | 57.11.3104 | 100 k |                             |        |
|        | R...51     | 57.11.3103 | 10 k  |                             |        |
|        | R...53     | 57.11.3152 | 1.5 k | 1%                          |        |
|        | R...54     | 57.11.3123 | 12 k  | 1%                          |        |

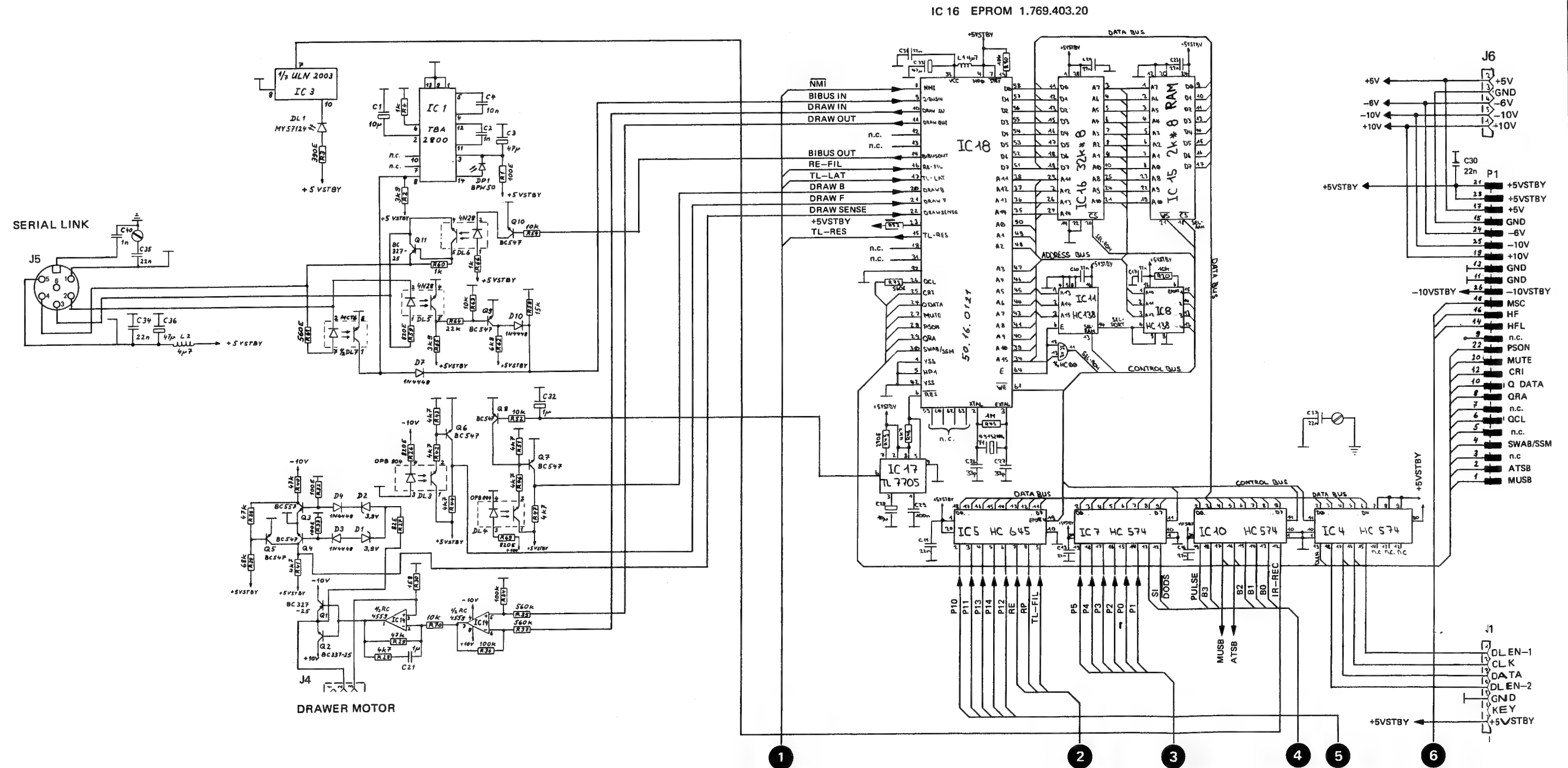
STUDER (04) 89/01/16 STU DECODER-BOARD PL 1.769.422.00 PAGE 7

## MICROPROCESSOR PCB 1.769.402.20 B126



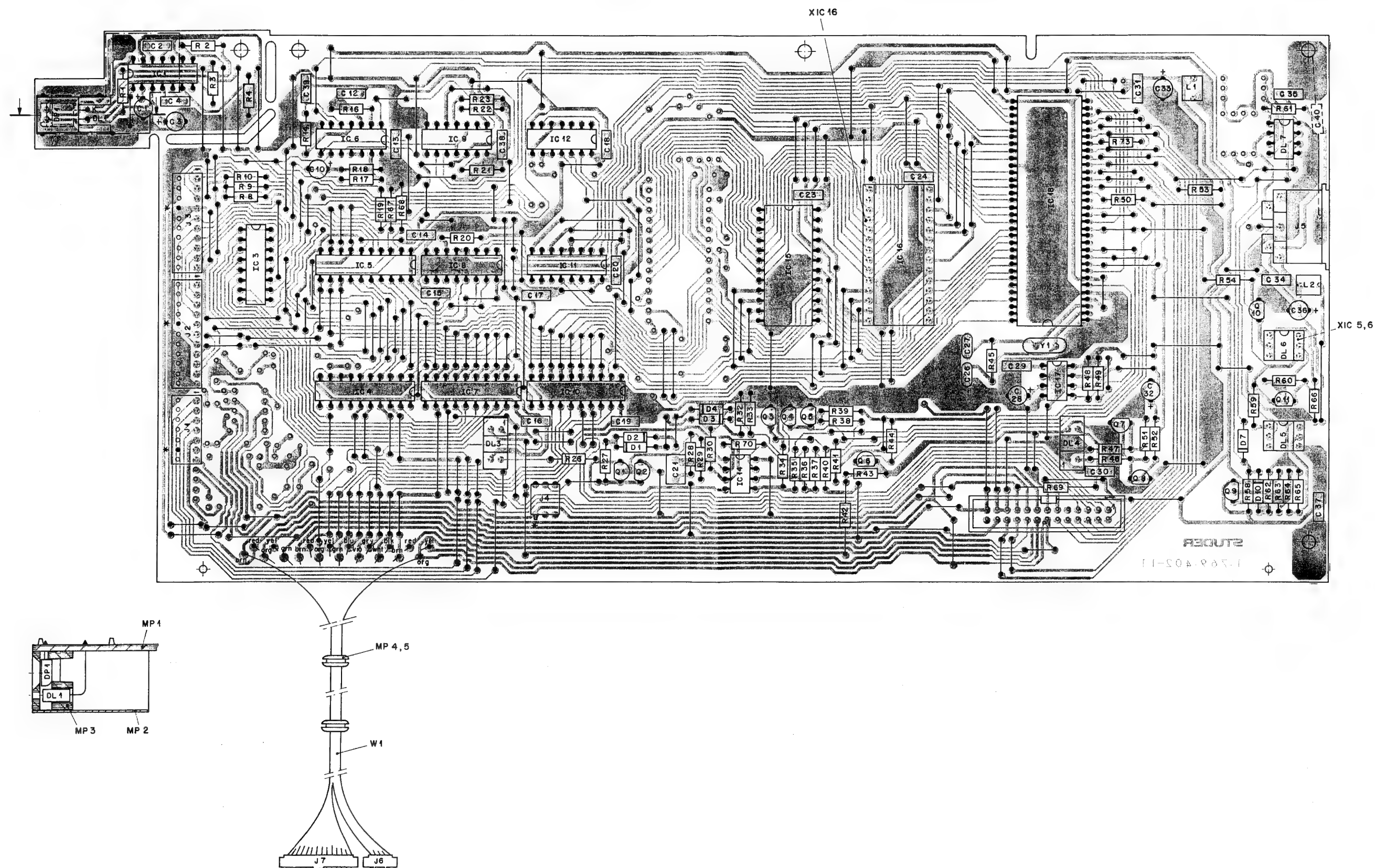


## MICROPROCESSOR PCB 1.769.402.20 B126

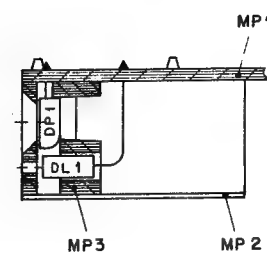
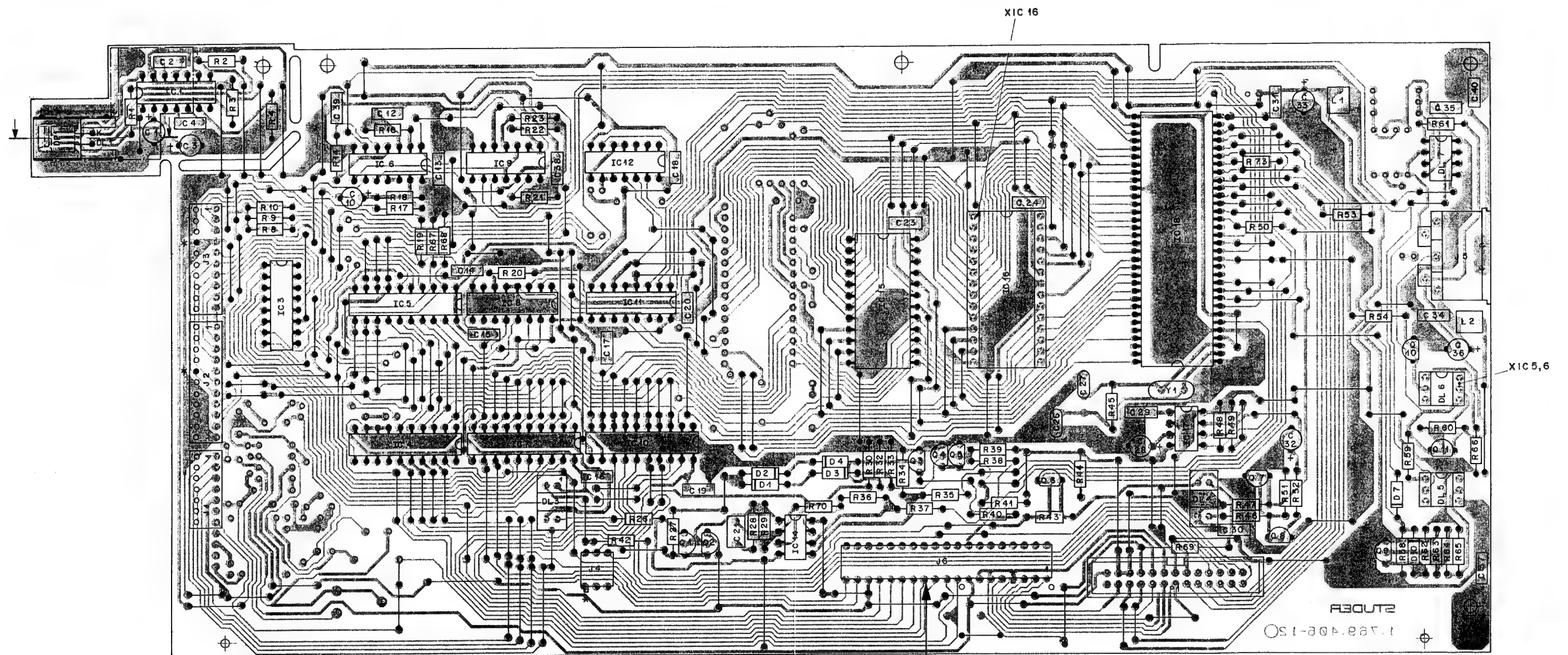


J6: TO SERVO PCB  
P1: TO DECODER PCB 1.769.421.00  
J1: TO LCD PCB 1.769.255.0)

## MICROPROCESSOR PCB 1.769.402.20 B126



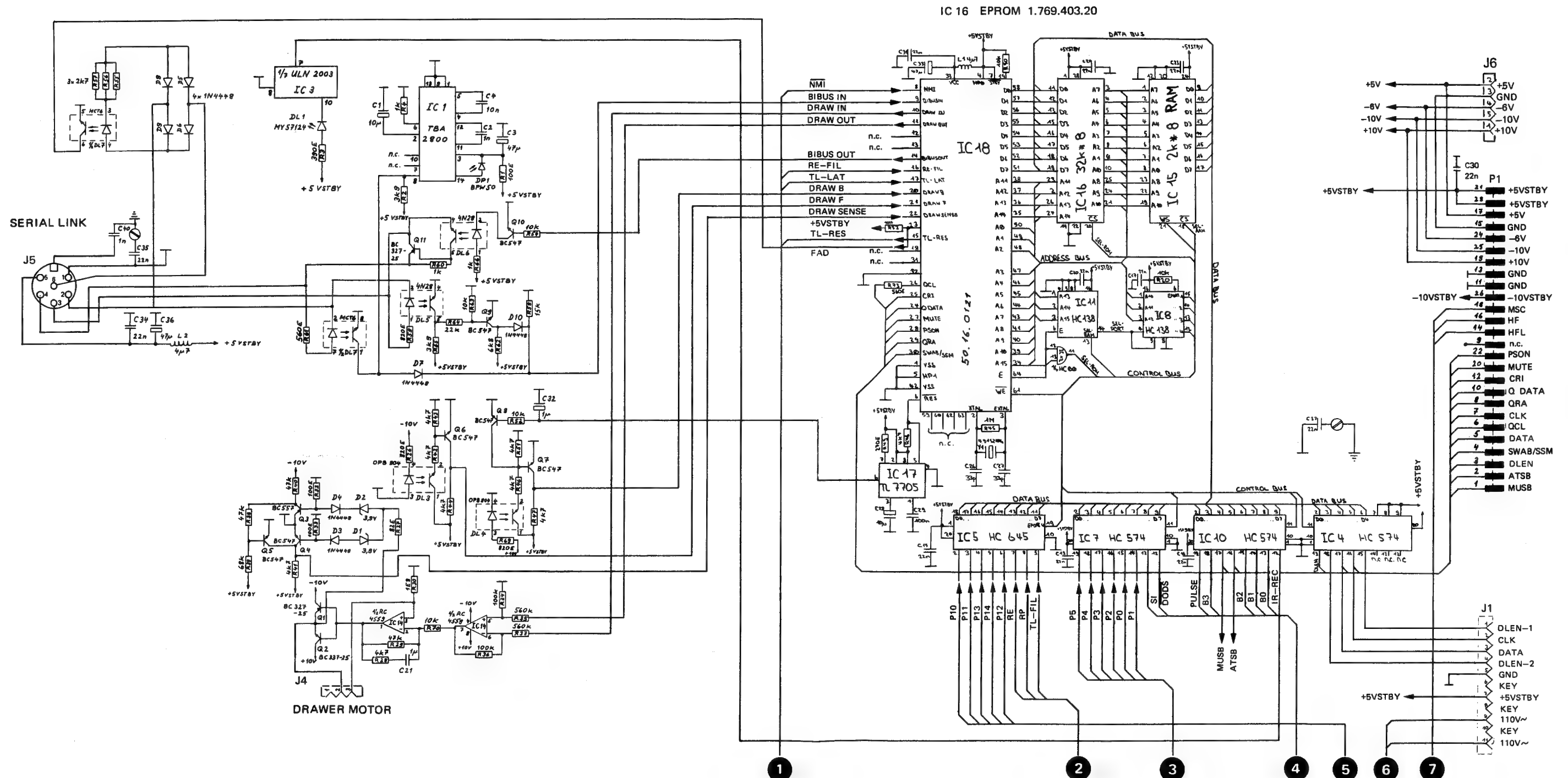
## MICROPROCESSOR PCB 1.769.406.20 ★ B126



TO SERVO PCB

★ CIRCUIT DIAGRAM EQUAL TO 1.769.402.20, CONNECTION TO SERVO PCB  
IS SEPARATELY LISTED → INTERCONNECTION CABLE 1.769.457.00

## MICROPROCESSOR PCB 1.769.404.20 B226-S







## MICROPROCESSOR PCB 1.769.402.20 B126

| IND.          | POS.NO.    | PART NO. | VALUE           | SPECIFICATIONS / EQUIVALENT      | MANUF. | IND.     | POS.NO.    | PART NO. | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF. |
|---------------|------------|----------|-----------------|----------------------------------|--------|----------|------------|----------|-------|-----------------------------|--------|
| C.....1       | 59-22-6100 | 10 u     | 10V, el         | *** all capacitor 10K / 50 V *** |        | R.....21 | 57-11-3103 | 10 k     |       |                             |        |
| C.....2       | 59-06-0102 | 1 n      | 10V, el         | *** otherwise noted ***          |        | R.....22 | 57-11-3103 | 10 k     |       |                             |        |
| C.....3       | 59-22-3470 | 47 n     | 10V, el         |                                  |        | R.....23 | 57-11-3103 | 10 k     |       |                             |        |
| C.....4       | 59-06-0103 | 10 n     |                 |                                  |        | R.....26 | 57-11-3821 | 820      |       |                             |        |
| C.....10      | 59-22-8109 | 1 u      | 10V, el         |                                  |        | R.....27 | 57-11-3920 | 82       |       |                             |        |
| C.....12      | 59-06-0102 | 1 n      |                 |                                  |        | R.....28 | 57-11-3472 | 4.7 k    |       |                             |        |
| C.....13      | 59-06-0223 | 22 n     |                 |                                  |        | R.....29 | 57-11-3473 | 47 k     |       |                             |        |
| C.....14      | 59-06-0102 | 1 n      |                 |                                  |        | R.....30 | 57-11-3189 | 1.8      |       |                             |        |
| C.....15      | 59-06-0223 | 22 n     |                 |                                  |        | R.....32 | 57-11-3101 | 100      |       |                             |        |
| C.....16      | 59-06-0223 | 22 n     |                 |                                  |        | R.....33 | 57-11-3101 | 100      |       |                             |        |
| C.....17      | 59-06-0223 | 22 n     |                 |                                  |        | R.....34 | 57-11-3104 | 100 k    |       |                             |        |
| C.....18      | 59-06-0223 | 22 n     |                 |                                  |        | R.....35 | 57-11-3564 | 560 k    |       |                             |        |
| C.....19      | 59-06-0223 | 22 n     |                 |                                  |        | R.....36 | 57-11-3104 | 100 k    |       |                             |        |
| C.....20      | 59-06-0223 | 22 n     |                 |                                  |        | R.....37 | 57-11-3564 | 560 k    |       |                             |        |
| C.....21      | 59-06-0105 | u        |                 |                                  |        | R.....38 | 57-11-3473 | 47 k     |       |                             |        |
| C.....23      | 59-06-0223 | 22 n     |                 |                                  |        | R.....39 | 57-11-3683 | 68 k     |       |                             |        |
| C.....24      | 59-06-0223 | 22 n     |                 |                                  |        | R.....40 | 57-11-3473 | 47 k     |       |                             |        |
| C.....26      | 59-34-2330 | 33 p     | cer             |                                  |        | R.....41 | 57-11-3472 | 4.7 k    |       |                             |        |
| C.....27      | 59-34-2330 | 33 p     | cer             |                                  |        | R.....42 | 57-11-3472 | 4.7 k    |       |                             |        |
| C.....28      | 59-22-6100 | 10 u     | 10V, el         |                                  |        | R.....43 | 57-11-3472 | 4.7 k    |       |                             |        |
| C.....29      | 59-36-0104 | 100 n    |                 |                                  |        | R.....44 | 57-11-3472 | 4.7 k    |       |                             |        |
| C.....30      | 59-06-0223 | 22 n     |                 |                                  |        | R.....45 | 57-11-3105 | 1 M      |       |                             |        |
| C.....31      | 59-06-0223 | 22 n     |                 |                                  |        | R.....46 | 57-11-3472 | 4.7 k    |       |                             |        |
| C.....32      | 59-22-8109 | 1 u      | 10V, el         |                                  |        | R.....47 | 57-11-3472 | 4.7 k    |       |                             |        |
| C.....33      | 59-22-3470 | 47 u     | 10V, el         |                                  |        | R.....48 | 57-11-3472 | 4.7 k    |       |                             |        |
| C.....34      | 59-06-0223 | 22 n     |                 |                                  |        | R.....49 | 57-11-3271 | 270      |       |                             |        |
| C.....35      | 59-06-0223 | 22 n     |                 |                                  |        | R.....50 | 57-11-3103 | 10 k     |       |                             |        |
| C.....36      | 59-22-3470 | 47 u     | 10V, el         |                                  |        | R.....51 | 57-11-3472 | 4.7 k    |       |                             |        |
| C.....37      | 59-06-0223 | 22 n     |                 |                                  |        | R.....52 | 57-11-3103 | 10 k     |       |                             |        |
| C.....38      | 59-06-0223 | 22 n     |                 |                                  |        | R.....53 | 57-11-3104 | 100 k    |       |                             |        |
| C.....39      | 59-06-0102 | 1 n      | cer             |                                  |        | R.....54 | 57-11-3103 | 10 k     |       |                             |        |
| (01) C.....40 | 59-32-4102 | 1 n      | cer             |                                  |        | R.....58 | 57-11-3153 | 15 k     |       |                             |        |
| D.....1       | 50-04-1101 | 3.9V     | ZENER DIODE     |                                  |        | R.....59 | 57-11-3821 | 820      |       |                             |        |
| D.....2       | 50-04-1101 | 3.9V     | ZENER DIODE     |                                  |        | R.....60 | 57-11-3102 | 1 M      |       |                             |        |
| D.....3       | 50-04-0125 | 1N4448   | general purpose |                                  |        | R.....61 | 57-11-3561 | 560      |       |                             |        |
| D.....4       | 50-04-0125 | 1N4448   | general purpose |                                  |        | R.....62 | 57-11-3682 | 6.8 k    |       |                             |        |

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S T U D E R (01) 88/10/06 SW MICROPROCESSOR-BOARD PL 1.769.402.20 PAGE 4

| IND.           | POS.NO.      | PART NO. | VALUE                                | SPECIFICATIONS / EQUIVALENT | MANUF. | IND.       | POS.NO.      | PART NO. | VALUE                            | SPECIFICATIONS / EQUIVALENT | MANUF. |
|----------------|--------------|----------|--------------------------------------|-----------------------------|--------|------------|--------------|----------|----------------------------------|-----------------------------|--------|
| D.....7        | 50-04-0125   | 1N4448   | general purpose                      |                             |        | R.....63   | 57-11-3103   | 10 k     |                                  |                             |        |
| D.....10       | 50-04-0125   | 1N4448   | general purpose                      |                             |        | R.....64   | 57-11-3223   | 22 k     |                                  |                             |        |
| DL.....1       | 50-74-2119   | MV 57124 | LED                                  |                             |        | R.....65   | 57-11-3392   | 3.9 k    |                                  |                             |        |
| DL.....3       | 50-04-3001   | OPB804   | OPTO-COUPLER                         |                             |        | R.....66   | 57-11-3102   | 1 k      |                                  |                             |        |
| DL.....4       | 50-04-3001   | OPB804   | OPTO-COUPLER                         |                             |        | R.....67   | 57-11-3472   | 4.7 k    |                                  |                             |        |
| DL.....5       | 50-99-0126   | 4N28     | OPTO-COUPLER                         |                             |        | R.....68   | 57-11-3472   | 4.7 k    |                                  |                             |        |
| DL.....6       | 50-99-0126   | 4N28     | OPTO-COUPLER                         |                             |        | R.....69   | 57-11-3821   | 820      |                                  |                             |        |
| DL.....7       | 50-99-0111   | HC16     | DUAL OPTO-COUPLER                    |                             |        | R.....70   | 57-11-3103   | 10 k     |                                  |                             |        |
| DP.....1       | 50-34-2136   | BPA 50   | PHOTO DIODE                          |                             |        | R.....73   | 57-11-3561   | 560      |                                  |                             |        |
| IC.....1       | 50-11-0121   | TBA2800  | 1R-RECEIVER                          |                             |        | W.....1    | 1.769.402.93 |          | WIRING-LIST MICROPROCESSOR-BOARD | St                          |        |
| IC.....3       | 50-05-0284   | ULN2003  | 7-BACK DARLINGTON DRIVER             |                             |        | XIC.....5  | 53-03-0144   | 6 PIN    | IC-SOCKET                        |                             |        |
| IC.....4       | 50-17-1574   | HC574    | OCTAL D-TYPE FLIP FLOP               |                             |        | XIC.....6  | 53-03-0146   | 6 PIN    | IC-SOCKET                        |                             |        |
| IC.....5       | 50-17-1645   | HC645    | OCTAL BUS TRANSCEIVER                |                             |        | XIC.....16 | 53-03-0173   | 28 PIN   | IC-SOCKET                        |                             |        |
| IC.....6       | 50-17-1014   | HC 14    | HEX SCHMITT TRIGGER INVERTER         |                             |        | Y.....1    | 49-01-0560   |          | 4.9152 MHZ QUARTZ                | HC 49 U                     |        |
| IC.....7       | 50-17-1574   | HC574    | OCTAL D-TYPE FLIP FLOP               |                             |        |            |              |          |                                  |                             |        |
| IC.....8       | 50-17-1138   | HC138    | 3 TO 8 LINE DECODER                  |                             |        |            |              |          |                                  |                             |        |
| IC.....9       | 50-17-1074   | HC 74    | DUAL D-TYPE FF WITH PRESET AND CLEAR |                             |        |            |              |          |                                  |                             |        |
| IC.....10      | 50-17-1574   | HC574    | OCTAL D-TYPE FLIP FLOP               |                             |        |            |              |          |                                  |                             |        |
| IC.....11      | 50-17-1138   | HC138    | 3 TO 8 LINE DECODER                  |                             |        |            |              |          |                                  |                             |        |
| IC.....12      | 50-17-1000   | HC 00    | QUAD 2-INPUT NAND GATE               |                             |        |            |              |          |                                  |                             |        |
| IC.....14      | 50-09-0107   | RC4559   | DUAL OP-AMP                          |                             |        |            |              |          |                                  |                             |        |
| IC.....15      | 50-14-0107   | HM6116LP | 2K*8 RAM                             |                             |        |            |              |          |                                  |                             |        |
| (00) IC.....16 | 1.769.402.20 |          | B126/226-S CD-SOFTWARE               |                             |        |            |              |          |                                  |                             |        |
| (01) IC.....16 | 53-14-0153   | HN27256  | B126/226-S CD-SOFTWARE 1.769.403.20  |                             |        |            |              |          |                                  |                             |        |
| IC.....17      | 50-11-0122   | TL7705   | RESET GENERATOR                      |                             |        |            |              |          |                                  |                             |        |
| IC.....18      | 50-16-0121   | 63A03-Y  | MICROPROCESSOR                       |                             |        |            |              |          |                                  |                             |        |
| J.....1        | 54-01-0215   | 7 PIN    | CIS-SOCKET STRIP                     |                             |        |            |              |          |                                  |                             |        |
| J.....2        | 54-01-0291   | 11 PIN   | CIS-SOCKET STRIP                     |                             |        |            |              |          |                                  |                             |        |
| J.....3        | 54-01-0290   | 10 PIN   | CIS-SOCKET STRIP                     |                             |        |            |              |          |                                  |                             |        |
| J.....4        | 54-01-0249   | 3 PIN    | CIS-SOCKET STRIP                     |                             |        |            |              |          |                                  |                             |        |
| J.....5        | 54-20-2001   | 8 PIN    | DIN JACK SOCKET                      |                             |        |            |              |          |                                  |                             |        |
| J.....6        | 54-99-0208   | 5 PIN    | STOCKED-CONNECTOR                    |                             |        |            |              |          |                                  |                             |        |
| J.....7        | 54-99-0207   | 14 PIN   | STOCKED-CONNECTOR                    |                             |        |            |              |          |                                  |                             |        |

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S T U D E R (01) 88/10/06 SW MICROPROCESSOR-BOARD PL 1.769.402.20 PAGE 8

| IND.          | POS.NO.      | PART NO.  | VALUE                          | SPECIFICATIONS / EQUIVALENT | MANUF. | IND. | POS.NO. | PART NO. | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF. |
|---------------|--------------|-----------|--------------------------------|-----------------------------|--------|------|---------|----------|-------|-----------------------------|--------|
| L.....1       | 62-72-3479   | 4.7 uH    | HF-CHOK                        |                             |        |      |         |          |       |                             |        |
| L.....2       | 62-72-3479   | 4.7 uH    | HF-CHOK                        |                             |        |      |         |          |       |                             |        |
| MP.....1      | 1.769.402.11 |           | MICROPROCESSOR PCB             |                             | St     |      |         |          |       |                             |        |
| MP.....2      | 1.769.400.02 |           | IR-SHIELD-CASE                 |                             | St     |      |         |          |       |                             |        |
| MP.....3      | 1.769.350.01 |           | IR-DIODE-SOCKET                |                             | St     |      |         |          |       |                             |        |
| MP.....4      | 31-01-0108   |           | KABELTUELLE                    |                             |        |      |         |          |       |                             |        |
| MP.....5      | 31-01-0108   |           | KABELTUELLE                    |                             |        |      |         |          |       |                             |        |
| P.....1       | 54-14-2003   | 26 PIN    | FLAT CABLE CONNECTOR           |                             |        |      |         |          |       |                             |        |
| Q.....1       | 50-33-0351   | BC 327-25 |                                |                             |        |      |         |          |       |                             |        |
| Q.....2       | 50-33-0340   | BC 327-25 |                                |                             |        |      |         |          |       |                             |        |
| Q.....3       | 50-03-0515   | BC 557B   | BC 307B, BC 560B               |                             |        |      |         |          |       |                             |        |
| Q.....4       | 50-03-0436   | BC 547B   | BC 237B, BC 550B               |                             |        |      |         |          |       |                             |        |
| Q.....5       | 50-03-0436   | BC 547B   | BC 237B, BC 550B               |                             |        |      |         |          |       |                             |        |
| Q.....6       | 50-03-0436   | BC 547B   | BC 237B, BC 550B               |                             |        |      |         |          |       |                             |        |
| Q.....7       | 50-03-0436   | BC 547B   | BC 237B, BC 550B               |                             |        |      |         |          |       |                             |        |
| Q.....8       | 50-03-0436   | BC 547B   | BC 237B, BC 550B               |                             |        |      |         |          |       |                             |        |
| Q.....9       | 50-03-0436   | BC 547B   | BC 237B, BC 550B               |                             |        |      |         |          |       |                             |        |
| Q.....10      | 50-03-0436   | BC 547B   | BC 237B, BC 550B               |                             |        |      |         |          |       |                             |        |
| (00) Q.....11 | 50-33-0436   | BC 547B   | BC 237B, BC 550B               |                             |        |      |         |          |       |                             |        |
| (01) Q.....11 | 50-33-0351   | BC327-25  |                                |                             |        |      |         |          |       |                             |        |
| R.....1       | 57-11-3101   | 100       | *** all resistors 5% .25W ***  |                             |        |      |         |          |       |                             |        |
| R.....2       | 57-11-3392   | 3.9 k     | *** general purpose ***        |                             |        |      |         |          |       |                             |        |
| R.....3       | 57-11-3391   | 390       | *** unless otherwise noted *** |                             |        |      |         |          |       |                             |        |
| R.....4       | 57-11-3102   | 1 k       |                                |                             |        |      |         |          |       |                             |        |
| R.....8       | 57-11-3472   | 4.7 k     |                                |                             |        |      |         |          |       |                             |        |
| R.....9       | 57-11-3472   | 4.7 k     |                                |                             |        |      |         |          |       |                             |        |
| R.....10      | 57-11-3472   | 4.7 k     |                                |                             |        |      |         |          |       |                             |        |
| R.....14      | 57-11-3103   | 10 k      |                                |                             |        |      |         |          |       |                             |        |
| R.....16      | 57-11-3103   | 10 k      |                                |                             |        |      |         |          |       |                             |        |
| R.....17      | 57-11-3683   | 68 k      |                                |                             |        |      |         |          |       |                             |        |
| R.....18      | 57-11-3333   | 33 k      |                                |                             |        |      |         |          |       |                             |        |
| R.....19      | 57-11-3103   | 10 k      |                                |                             |        |      |         |          |       |                             |        |
| R.....20      | 57-11-3103   | 10 k      |                                |                             |        |      |         |          |       |                             |        |

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## MICROPROCESSOR PCB 1.769.406.20 B126



| IND.     | POS.-NO.   | PART NO. | VALUE    | SPECIFICATIONS / EQUIVALENT      | MANUF. |
|----------|------------|----------|----------|----------------------------------|--------|
| C.....1  | 59.22.6100 | 10 u     | 10V + el | *** all capacitor 10% / 50 V *** |        |
| C.....2  | 59.06.0102 | 1 n      | 10V + el | *** otherwise noted ***          |        |
| C.....3  | 59.22.3479 | 47 u     | 10V + el |                                  |        |
| C.....4  | 59.06.0103 | 10 m     | 10V + el |                                  |        |
| C.....10 | 59.22.8109 | 1 u      | 10V + el |                                  |        |
| C.....12 | 59.06.0102 | 1 n      |          |                                  |        |
| C.....13 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....14 | 59.06.0102 | 1 n      |          |                                  |        |
| C.....15 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....16 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....17 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....18 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....19 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....20 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....21 | 59.06.0105 | 1 u      |          |                                  |        |
| C.....23 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....24 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....26 | 59.34.2330 | 33 p     | cer      |                                  |        |
| C.....27 | 59.34.2330 | 33 p     | cer      |                                  |        |
| C.....28 | 59.22.6100 | 10 u     | 10V + el |                                  |        |
| C.....29 | 59.06.0104 | 100 n    |          |                                  |        |
| C.....30 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....31 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....32 | 59.22.8109 | 1 u      | 10V + el |                                  |        |
| C.....33 | 59.22.3479 | 47 u     | 10V + el |                                  |        |
| C.....34 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....35 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....36 | 59.22.3479 | 47 u     | 10V + el |                                  |        |
| C.....37 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....38 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....39 | 59.06.0102 | 1 n      |          |                                  |        |
| C.....40 | 59.32.4102 | 1 n      | cer      |                                  |        |
| D.....1  | 50.04.1101 | 3.9V     |          | ZENER DIODE                      |        |
| D.....2  | 50.04.1101 | 3.9V     |          | ZENER DIODE                      |        |
| D.....3  | 50.04.0125 | 1N4448   |          | general purpose                  |        |
| D.....4  | 50.04.0125 | 1N4448   |          | general purpose                  |        |

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| IND.     | POS.-NO.   | PART NO. | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF. |
|----------|------------|----------|-------|-----------------------------|--------|
| R.....26 | 57.11.3421 | 820      |       |                             |        |
| R.....27 | 57.11.3420 | 92       |       |                             |        |
| R.....28 | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....29 | 57.11.3473 | 4.7 k    |       |                             |        |
| R.....30 | 57.11.3189 | 1.8      |       |                             |        |
| R.....32 | 57.11.3101 | 100      |       |                             |        |
| R.....33 | 57.11.3101 | 100      |       |                             |        |
| R.....34 | 57.11.3104 | 100 k    |       |                             |        |
| R.....35 | 57.11.3564 | 560 k    |       |                             |        |
| R.....36 | 57.11.3104 | 100 k    |       |                             |        |
| R.....37 | 57.11.3564 | 560 k    |       |                             |        |
| R.....38 | 57.11.3473 | 4.7 k    |       |                             |        |
| R.....39 | 57.11.3683 | 68 k     |       |                             |        |
| R.....40 | 57.11.3473 | 4.7 k    |       |                             |        |
| R.....41 | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....42 | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....43 | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....44 | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....45 | 57.11.3105 | 1 n      |       |                             |        |
| R.....46 | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....47 | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....48 | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....49 | 57.11.3271 | 270      |       |                             |        |
| R.....50 | 57.11.3103 | 10 k     |       |                             |        |
| R.....51 | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....52 | 57.11.3103 | 10 k     |       |                             |        |
| R.....53 | 57.11.3104 | 100 k    |       |                             |        |
| R.....54 | 57.11.3103 | 10 k     |       |                             |        |
| R.....58 | 57.11.3153 | 15 k     |       |                             |        |
| R.....59 | 57.11.3821 | 820      |       |                             |        |
| R.....60 | 57.11.3102 | 1 k      |       |                             |        |
| R.....61 | 57.11.3561 | 560      |       |                             |        |
| R.....62 | 57.11.3582 | 6.8 k    |       |                             |        |
| R.....63 | 57.11.3103 | 10 k     |       |                             |        |
| R.....64 | 57.11.3223 | 22 k     |       |                             |        |
| R.....65 | 57.11.3392 | 3.9 k    |       |                             |        |
| R.....66 | 57.11.3102 | 1 k      |       |                             |        |

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| IND.      | POS.-NO.   | PART NO.  | VALUE | SPECIFICATIONS / EQUIVALENT          | MANUF. |
|-----------|------------|-----------|-------|--------------------------------------|--------|
| D.....7   | 50.04.0125 | 1N4448    |       | general purpose                      |        |
| D.....10  | 50.04.0125 | 1N4448    |       | general purpose                      |        |
| DL.....1  | 50.04.2119 | HY 57124  |       | LED                                  |        |
| DL.....3  | 50.04.3001 | DP804     |       | OPTO-COUPLER                         |        |
| DL.....4  | 50.04.3001 | DP804     |       | OPTO-COUPLER                         |        |
| DL.....5  | 50.09.0126 | 4N28      |       | OPTO-COUPLER                         |        |
| DL.....6  | 50.09.0126 | 4N28      |       | OPTO-COUPLER                         |        |
| DL.....7  | 50.09.0111 | HC16      |       | DUAL OPTO-COUPLER                    |        |
| DP.....1  | 50.04.2136 | DPH 50    |       | PHOTO DIODE                          |        |
| IC.....1  | 50.11.0121 | TBA2800   |       | IR-RECEIVER                          |        |
| IC.....3  | 50.05.0284 | ULN2003   |       | 7-FACH DARLINGTON DRIVER             |        |
| IC.....4  | 50.17.1574 | HC574     |       | OCTAL D-TYPE FLIP FLOP               |        |
| IC.....5  | 50.17.1445 | HC645     |       | OCTAL BUS TRANSCIEVER                |        |
| IC.....6  | 50.17.1014 | HC 14     |       | HEX SCHMITT TRIGGER INVERTER         |        |
| IC.....7  | 50.17.1574 | HC574     |       | OCTAL D-TYPE FLIP FLOP               |        |
| IC.....8  | 50.17.1138 | HC138     |       | 3 TO 8 LINE DECODER                  |        |
| IC.....9  | 50.17.1074 | HC 74     |       | DUAL D-TYPE FF WITH PRESET AND CLEAR |        |
| IC.....10 | 50.17.1574 | HC574     |       | OCTAL D-TYPE FLIP FLOP               |        |
| IC.....11 | 50.17.1138 | HC138     |       | 3 TO 8 LINE DECODER                  |        |
| IC.....12 | 50.17.1074 | HC 74     |       | QUAD 2-INPUT NAND GATE               |        |
| IC.....14 | 50.09.0107 | AC4555    |       | DUAL OP-AMP                          |        |
| IC.....15 | 50.14.0107 | HM6116LP  |       | 2Kx8 RAM                             |        |
| IC.....16 | 50.14.0153 | HM27256P1 |       | BI26/226-S CD-SOFTWARE 1.769.403.20  |        |
| IC.....17 | 50.11.0122 | T17708    |       | RESET GENERATOR                      |        |
| IC.....18 | 50.16.0121 | 63A03-Y   |       | MICROPROCESSOR                       |        |
| J.....1   | 54.01.0218 | 7 PIN     |       | CIS-SOCKET STRIP                     |        |
| J.....2   | 54.01.0291 | 11 PIN    |       | CIS-SOCKET STRIP                     |        |
| J.....3   | 54.01.0290 | 10 PIN    |       | CIS-SOCKET STRIP                     |        |
| J.....4   | 54.01.0249 | 3 PIN     |       | CIS-SOCKET STRIP                     |        |
| J.....5   | 54.01.2001 | 6 PIN     |       | DIN JACK SOCKET                      |        |
| J.....6   | 54.01.0312 | 19 PIN    |       | CIS-SOCKET STRIP                     |        |

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| IND.      | POS.-NO.   | PART NO. | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF. |
|-----------|------------|----------|-------|-----------------------------|--------|
| R.....57  | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....58  | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....59  | 57.11.3821 | 820      |       |                             |        |
| R.....70  | 57.11.3103 | 10 k     |       |                             |        |
| R.....73  | 57.11.3561 | 560      |       |                             |        |
| XIC.....5 | 53.03.0144 | 6 PIN    |       | IC-SOCKET                   |        |
| XIC.....6 | 53.03.0144 | 6 PIN    |       | IC-SOCKET                   |        |
| XIC.....8 | 53.03.0173 | 28 PIN   |       | IC-SOCKET                   |        |
| Y.....1   | 89.01.0560 |          |       | 4x9152 MNZ, QUARTZ HC 49 M  |        |

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| IND.     | POS.-NO.     | PART NO.  | VALUE | SPECIFICATIONS / EQUIVALENT    | MANUF. |
|----------|--------------|-----------|-------|--------------------------------|--------|
| L.....2  | 62.02.3479   | 4.7 uH    |       | MF-CHOKE                       |        |
| MP.....1 | 1.769.406.11 |           |       | MICROPROCESSOR PCB             | St     |
| MP.....2 | 1.769.406.12 |           |       | MICROPROCESSOR PCB             | St     |
| MP.....3 | 1.769.400.02 |           |       | IR-SHIELD-CASE                 | St     |
| MP.....4 | 1.769.330.01 |           |       | IR-DIODE-SOCKET                | St     |
| P.....1  | 89.14.2003   | 28 PIN    |       | FLAT CABLE CONNECTOR           |        |
| Q.....1  | 50.03.0351   | BC 327-25 |       |                                |        |
| Q.....2  | 50.03.0340   | BC 337-25 |       |                                |        |
| Q.....3  | 50.03.0515   | BC 557B   |       | BC 307B, BC 560B               |        |
| Q.....4  | 50.03.0436   | BC 547B   |       | BC 237B, BC 550B               |        |
| Q.....5  | 50.03.0436   | BC 547B   |       | BC 237B, BC 550B               |        |
| Q.....6  | 50.03.0436   | BC 547B   |       | BC 237B, BC 550B               |        |
| Q.....7  | 50.03.0436   | BC 547B   |       | BC 237B, BC 550B               |        |
| Q.....8  | 50.03.0436   | BC 547B   |       | BC 237B, BC 550B               |        |
| Q.....9  | 50.03.0436   | BC 547B   |       | BC 237B, BC 550B               |        |
| Q.....10 | 50.03.0436   | BC 547B   |       | BC 237B, BC 550B               |        |
| Q.....11 | 50.03.0351   | BC 327-25 |       |                                |        |
| R.....1  | 57.11.3101   | 100       |       | *** all resistors 5% -25W ***  |        |
| R.....2  | 57.11.3392   | 3.9 k     |       | *** general purpose ***        |        |
| R.....3  | 57.11.3391   | 390       |       | *** unless otherwise noted *** |        |
| R.....4  | 57.11.3102   | 1 k       |       |                                |        |
| R.....6  | 57.11.3472   | 4.7 k     |       |                                |        |
| R.....9  | 57.11.3472   | 4.7 k     |       |                                |        |
| R.....10 | 57.11.3472   | 4.7 k     |       |                                |        |
| R.....14 | 57.11.3103   | 10 k      |       |                                |        |
| R.....16 | 57.11.3103   | 10 k      |       |                                |        |
| R.....17 | 57.11.3683   | 68 k      |       |                                |        |
| R.....18 | 57.11.3333   | 33 k      |       |                                |        |
| R.....19 | 57.11.3103   | 10 k      |       |                                |        |
| R.....20 | 57.11.3103   | 10 k      |       |                                |        |
| R.....21 | 57.11.3103   | 10 k      |       |                                |        |
| R.....22 | 57.11.3103   | 10 k      |       |                                |        |
| R.....23 | 57.11.3103   | 10 k      |       |                                |        |

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## MICROPROCESSOR PCB 1.769.404.20 B226-S



| IND.     | POS.NO.    | PART NO. | VALUE    | SPECIFICATIONS / EQUIVALENT      | MANUF. |
|----------|------------|----------|----------|----------------------------------|--------|
| C.....1  | 59.22.4103 | 10 u     | 10V ± e1 | *** all capacitor 10% / 50 V *** |        |
| C.....2  | 59.06.0102 | 1 n      | 10V ± e1 | *** otherwise noted ***          |        |
| C.....3  | 59.22.3470 | 47 M     | 10V ± e1 |                                  |        |
| C.....4  | 59.06.0103 | 10 n     | 10V ± e1 |                                  |        |
| C.....5  | 59.22.3470 | 47 u     | 10V ± e1 |                                  |        |
| C.....6  | 59.34.8331 | 330 p    | cer ± 2% |                                  |        |
| C.....7  | 59.06.0333 | 33 n     | 5%       |                                  |        |
| C.....8  | 59.06.5472 | 4.7 n    | 5%       |                                  |        |
| C.....9  | 59.06.5472 | 4.7 n    | 5%       |                                  |        |
| C.....10 | 59.22.8109 | 1 u      | 10V ± e1 |                                  |        |
| C.....11 | 59.22.4221 | 220 u    | 10V ± e1 |                                  |        |
| C.....12 | 59.06.0102 | 1 n      |          |                                  |        |
| C.....13 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....14 | 59.06.0102 | 1 n      |          |                                  |        |
| C.....15 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....16 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....17 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....18 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....19 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....20 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....21 | 59.06.0105 | 1 u      |          |                                  |        |
| C.....22 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....23 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....24 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....25 | 59.34.2330 | 33 p     | cer      |                                  |        |
| C.....26 | 59.34.2330 | 33 p     | cer      |                                  |        |
| C.....27 | 59.22.8109 | 1 u      | 10V ± e1 |                                  |        |
| C.....28 | 59.06.0104 | 100 n    |          |                                  |        |
| C.....29 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....30 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....31 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....32 | 59.22.8109 | 1 u      | 10V ± e1 |                                  |        |
| C.....33 | 59.22.3470 | 47 u     | 10V ± e1 |                                  |        |
| C.....34 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....35 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....36 | 59.22.3470 | 47 u     | 10V ± e1 |                                  |        |
| C.....37 | 59.06.0223 | 22 n     |          |                                  |        |
| C.....38 | 59.06.0223 | 22 n     |          |                                  |        |

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| IND.         | POS.NO.    | PART NO. | VALUE | SPECIFICATIONS / EQUIVALENT    | MANUF. |
|--------------|------------|----------|-------|--------------------------------|--------|
| R.....1      | 57.11.3101 | 100      |       | *** all resistors 5% ± 25W *** |        |
| R.....2      | 57.11.3392 | 3.9 M    |       | *** general purpose ***        |        |
| R.....3      | 57.11.3391 | 390      |       | *** unless otherwise noted *** |        |
| R.....4      | 57.11.3102 | 1 k      |       |                                |        |
| (00) R.....5 | 57.11.3511 | 510      |       |                                |        |
| (01) R.....6 | 57.11.3751 | 750      |       |                                |        |
| (02) R.....7 | 57.11.3102 | 1 k      |       |                                |        |
| (01) R.....8 | 57.11.3132 | 1.3 k    |       |                                |        |
| R.....9      | 57.11.3224 | 220 k    |       |                                |        |
| R.....10     | 57.11.3472 | 4.7 k    |       |                                |        |
| R.....11     | 57.11.3913 | 91 k     | 1%    |                                |        |
| R.....12     | 57.11.3913 | 91 k     | 1%    |                                |        |
| R.....13     | 57.11.3103 | 10 k     |       |                                |        |
| R.....14     | 57.11.3103 | 10 k     |       |                                |        |
| R.....15     | 57.11.3103 | 10 k     |       |                                |        |
| R.....16     | 57.11.3103 | 10 k     |       |                                |        |
| R.....17     | 57.11.3683 | 68 k     |       |                                |        |
| R.....18     | 57.11.3333 | 33 k     |       |                                |        |
| R.....19     | 57.11.3103 | 10 k     |       |                                |        |
| R.....20     | 57.11.3103 | 10 k     |       |                                |        |
| R.....21     | 57.11.3103 | 10 k     |       |                                |        |
| R.....22     | 57.11.3103 | 10 k     |       |                                |        |
| R.....23     | 57.11.3103 | 10 k     |       |                                |        |
| R.....24     | 57.11.3124 | 120 M    |       |                                |        |
| R.....25     | 57.11.3104 | 100 k    |       |                                |        |
| R.....26     | 57.11.3821 | 820      |       |                                |        |
| R.....27     | 57.11.3820 | 82       |       |                                |        |
| R.....28     | 57.11.3472 | 4.7 k    |       |                                |        |
| R.....29     | 57.11.3473 | 4.7 k    |       |                                |        |
| R.....30     | 57.11.3189 | 1.8 k    |       |                                |        |
| R.....31     | 57.11.3103 | 10 k     |       |                                |        |
| R.....32     | 57.11.3101 | 100      |       |                                |        |
| R.....33     | 57.11.3101 | 100      |       |                                |        |
| R.....34     | 57.11.3104 | 100 k    |       |                                |        |
| R.....35     | 57.11.3566 | 560 k    |       |                                |        |

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| IND.          | POS.NO.    | PART NO. | VALUE                                | SPECIFICATIONS / EQUIVALENT | MANUF. |
|---------------|------------|----------|--------------------------------------|-----------------------------|--------|
| (02) C.....39 | 59.06.0102 | 1 n      |                                      |                             |        |
| (02) C.....40 | 59.32.4102 | 1 n      | cer                                  |                             |        |
| D.....1       | 50.34.1101 | 3.9V     | ZENER DIODE                          |                             |        |
| D.....2       | 50.04.1101 | 3.9V     | ZENER DIODE                          |                             |        |
| D.....3       | 50.04.0125 | 1N4448   | general purpose                      |                             |        |
| D.....4       | 50.04.0125 | 1N4448   | general purpose                      |                             |        |
| D.....5       | 50.04.0125 | 1N4448   | general purpose                      |                             |        |
| D.....6       | 50.04.0125 | 1N4448   | general purpose                      |                             |        |
| D.....7       | 50.04.0125 | 1N4448   | general purpose                      |                             |        |
| D.....8       | 50.04.0125 | 1N4448   | general purpose                      |                             |        |
| D.....9       | 50.04.0125 | 1N4448   | general purpose                      |                             |        |
| D.....10      | 50.04.0125 | 1N4448   | general purpose                      |                             |        |
| DL.....1      | 50.34.2119 | HV 57124 | LED                                  |                             |        |
| DL.....2      | 50.04.3001 | OP8804   | OPTO-COUPLER                         |                             |        |
| DL.....3      | 50.04.3001 | OP8804   | OPTO-COUPLER                         |                             |        |
| DL.....4      | 50.04.3001 | OP8804   | OPTO-COUPLER                         |                             |        |
| DL.....5      | 50.04.3001 | OP8804   | OPTO-COUPLER                         |                             |        |
| DL.....6      | 50.04.3001 | OP8804   | OPTO-COUPLER                         |                             |        |
| DL.....7      | 50.04.3001 | OP8804   | OPTO-COUPLER                         |                             |        |
| DP.....1      | 50.04.2136 | BPN 50   | PHOTO DIODE                          |                             |        |
| IC.....1      | 50.11.3121 | 78A2800  | TR-RECEIVER                          |                             |        |
| IC.....2      | 50.09.0114 | L 272 M  | DUAL POWER OP-AMP                    |                             |        |
| IC.....3      | 50.05.0284 | ULN2003  | 7-PACK DARLINGTON DRIVER             |                             |        |
| IC.....4      | 50.17.1574 | HC574    | OCTAL D-TYPE FLIP FLOP               |                             |        |
| IC.....5      | 50.17.1645 | HC645    | OCTAL BUS TRANSCEIVER                |                             |        |
| IC.....6      | 50.17.1014 | HC 14    | HEX SCHMITT TRIGGER INVERTER         |                             |        |
| IC.....7      | 50.17.1574 | HC574    | OCTAL D-TYPE FLIP FLOP               |                             |        |
| IC.....8      | 50.17.1138 | HC138    | 3 TO 8 LINE DECODER                  |                             |        |
| IC.....9      | 50.17.1074 | HC 74    | DUAL D-TYPE FF WITH PRESET AND CLEAR |                             |        |
| IC.....10     | 50.17.1574 | HC574    | OCTAL D-TYPE FLIP FLOP               |                             |        |
| IC.....11     | 50.17.1138 | HC138    | 3 TO 8 LINE DECODER                  |                             |        |
| IC.....12     | 50.17.1009 | HC 00    | QUAD2-INPUT NAND GATE                |                             |        |
| IC.....13     | 50.09.0107 | RC4559   | DUAL OP-AMP                          |                             |        |
| IC.....14     | 50.14.0107 | HM6116LP | 2kB RAM                              |                             |        |

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| IND.          | POS.NO.    | PART NO. | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF. |
|---------------|------------|----------|-------|-----------------------------|--------|
| R.....36      | 57.11.3104 | 100 k    |       |                             |        |
| R.....37      | 57.11.3566 | 560 k    |       |                             |        |
| R.....38      | 57.11.3473 | 4.7 k    |       |                             |        |
| R.....39      | 57.11.3683 | 68 k     |       |                             |        |
| R.....40      | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....41      | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....42      | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....43      | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....44      | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....45      | 57.11.3105 | 1 M      |       |                             |        |
| R.....46      | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....47      | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....48      | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....49      | 57.11.3271 | 270      |       |                             |        |
| R.....50      | 57.11.3103 | 10 k     |       |                             |        |
| R.....51      | 57.11.3472 | 4.7 k    |       |                             |        |
| (00) R.....52 | 57.11.3103 | 10 k     |       |                             |        |
| (01) R.....53 | 57.11.3103 | 10 k     |       |                             |        |
| R.....54      | 57.11.3104 | 100 k    |       |                             |        |
| R.....55      | 57.11.3103 | 10 k     |       |                             |        |
| R.....56      | 57.11.3272 | 2.7 k    |       |                             |        |
| R.....57      | 57.11.3272 | 2.7 k    |       |                             |        |
| R.....58      | 57.11.3153 | 15 k     |       |                             |        |
| R.....59      | 57.11.3821 | 820      |       |                             |        |
| R.....60      | 57.11.3102 | 1 k      |       |                             |        |
| R.....61      | 57.11.3561 | 560      |       |                             |        |
| R.....62      | 57.11.3682 | 68 k     |       |                             |        |
| R.....63      | 57.11.3103 | 10 k     |       |                             |        |
| R.....64      | 57.11.3223 | 22 M     |       |                             |        |
| R.....65      | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....66      | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....67      | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....68      | 57.11.3472 | 4.7 k    |       |                             |        |
| R.....69      | 57.11.3021 | 820      |       |                             |        |
| R.....70      | 57.11.3103 | 10 k     |       |                             |        |
| (00) R.....71 | 57.11.3103 | 10 k     |       |                             |        |

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| IND.           | POS.NO.      | PART NO.  | VALUE | SPECIFICATIONS / EQUIVALENT         | MANUF. |
|----------------|--------------|-----------|-------|-------------------------------------|--------|
| (00) IC.....16 | 1.759.403.20 |           |       | B126/226-S CD-SOFTWARE              |        |
| (01) IC.....17 | 50.14.0153   | HN2756    |       | B126/226-S CD-SOFTWARE 1.769.403.20 |        |
| IC.....18      | 50.11.0122   | TL1705    |       | RESET GENERATOR                     |        |
| IC.....19      | 50.16.0121   | 63A03-V   |       | MICROPROCESSOR                      |        |
| J.....1        | 54.01.0291   | 11 PIN    |       | CIS-SOCKET STRIP                    |        |
| J.....2        | 54.01.0291   | 11 PIN    |       | CIS-SOCKET STRIP                    |        |
| J.....3        | 54.01.0290   | 10 PIN    |       | CIS-SOCKET STRIP                    |        |
| J.....4        | 54.01.0249   | 3 PIN     |       | CIS-SOCKET STRIP                    |        |
| J.....5        | 54.20.2001   | 4 PIN     |       | DM JACK SOCKET                      |        |
| J.....6        | 54.99.0208   | 5 PIN     |       | STOCK-CONNECTOR                     |        |
| J.....7        | 54.99.0207   | 14 PIN    |       | STOCK-CONNECTOR                     |        |
| L.....1        | 52.22.3479   | 4.7 uH    |       | HF-CHOKE                            |        |
| L.....2        | 52.22.3479   | 4.7 uH    |       | HF-CHOKE                            |        |
| MP.....1       | 1.769.402.11 |           |       | MICROPROCESSOR PCB                  | St     |
| MP.....2       | 1.769.400.02 |           |       | IR-SHIELD-CASE                      | St     |
| MP.....3       | 1.769.330.01 |           |       | IR-DIODE-SOCKET                     | St     |
| MP.....4       | 31.01.0108   |           |       | KABELTUELLE                         |        |
| MP.....5       | 31.31.0108   |           |       | KABELTUELLE                         |        |
| P.....1        | 54.14.2003   | 26 PIN    |       | FLAT CABLE CONNECTOR                |        |
| Q.....1        | 50.03.0351   | BC 327-25 |       |                                     |        |
| Q.....2        | 50.03.0340   | BC 337-25 |       |                                     |        |
| Q.....3        | 50.03.0515   | BC 5578   |       | BC 3078; BC 5608                    |        |
| Q.....4        | 50.03.0436   | BC 5478   |       | BC 2378; BC 5508                    |        |
| Q.....5        | 50.03.0436   | BC 5478   |       | BC 2378; BC 5508                    |        |
| Q.....6        | 50.03.0436   | BC 5478   |       | BC 2378; BC 5508                    |        |
| Q.....7        | 50.03.0436   | BC 5478   |       | BC 2378; BC 5508                    |        |
| Q.....8        | 50.03.0436   | BC 5478   |       | BC 2378; BC 5508                    |        |
| Q.....9        | 50.03.0436   | BC 5478   |       | BC 2378; BC 5508                    |        |
| Q.....10       | 50.03.0436   | BC 5478   |       | BC 2378; BC 5508                    |        |
| (00) Q.....11  | 50.03.0436   | BC 5478   |       | BC 2378; BC 5508                    |        |
| (01) Q.....12  | 50.03.0193   | BC 327-25 |       |                                     |        |

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| IND.          | POS.NO.      | PART NO. | VALUE | SPECIFICATIONS / EQUIVALENT      | MANUF. |
|---------------|--------------|----------|-------|----------------------------------|--------|
| (01) R.....71 | 57.11.3103   | 10 k     |       | not used                         |        |
| R.....72      | 57.11.3561   | 560      |       |                                  |        |
| R.....73      | 57.11.3561   | 560      |       |                                  |        |
| T.....1       | 1.022.602.00 |          |       | DISPLAY TRANSFORMER              |        |
| W.....1       | 1.769.402.93 |          |       | WIRING-LIST MICROPROCESSOR-BOARD | St     |
| XC.....5      | 53.03.0164   | 8 PIN    |       | IC-SOCKET                        |        |
| XC.....6      | 53.03.0164   | 6 PIN    |       | IC-SOCKET                        |        |
| XC.....7      | 53.03.0173   | 28 PIN   |       | IC-SOCKET                        |        |
| Y.....1       | 89.01.0560   |          |       | 4.9152 MHz QUARTZ HC 59 II       |        |

(01) 05.07.88 MODIFICATION AFTER 0-SERIE

(02) 06.10.88 Punkschutzzeichen

el=electrolytic, cer=ceramic,

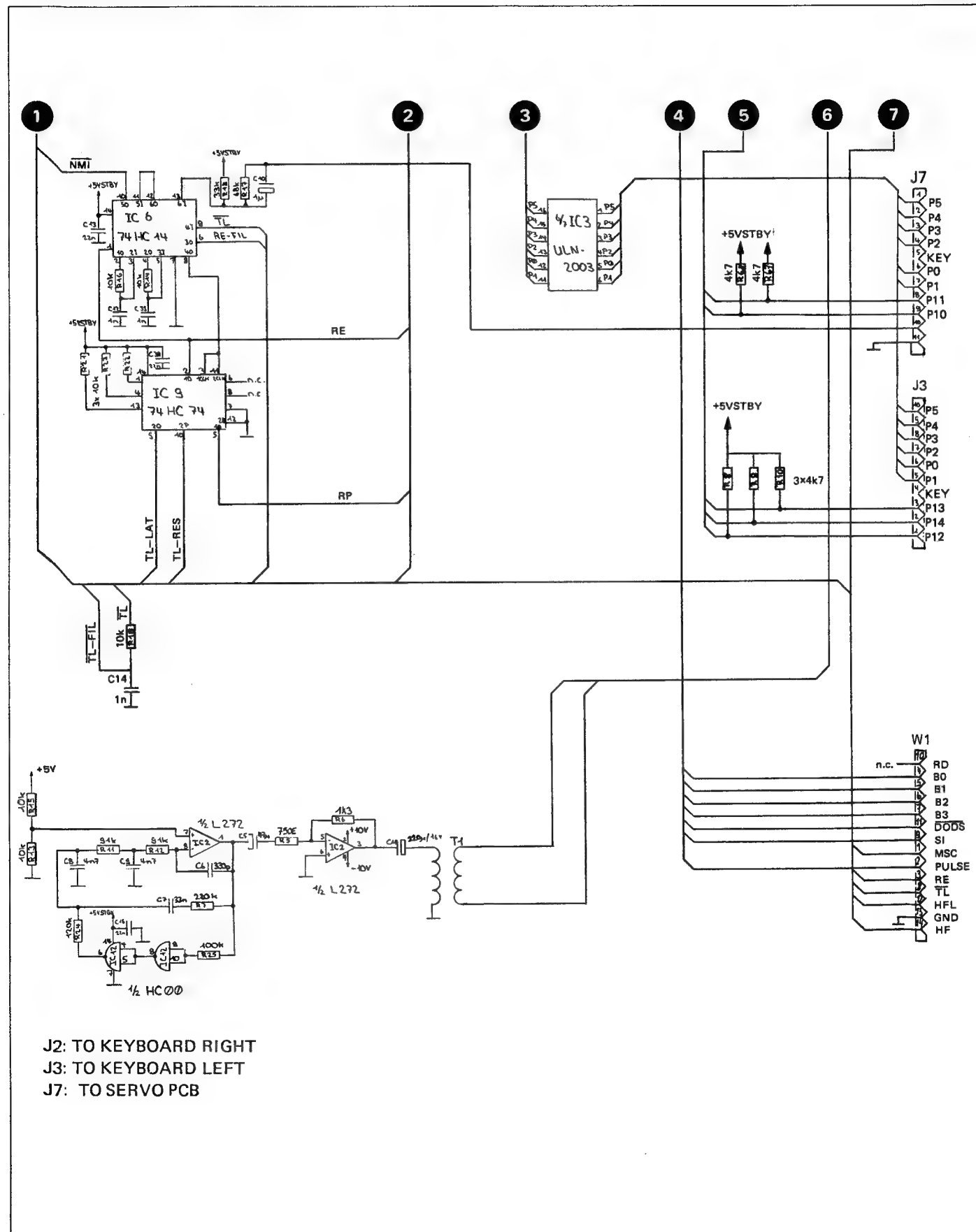
MANUFACTURER: St=Studer

ORIG 88/03/21 (01) 88/07/05 (02) 88/10/06

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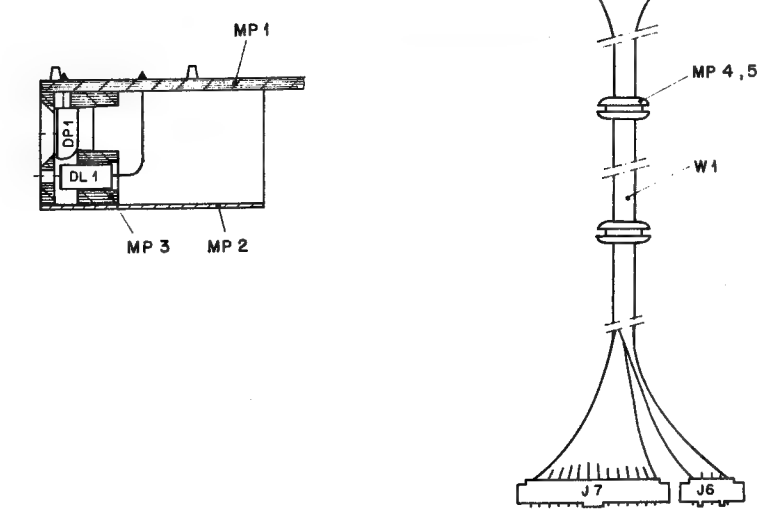
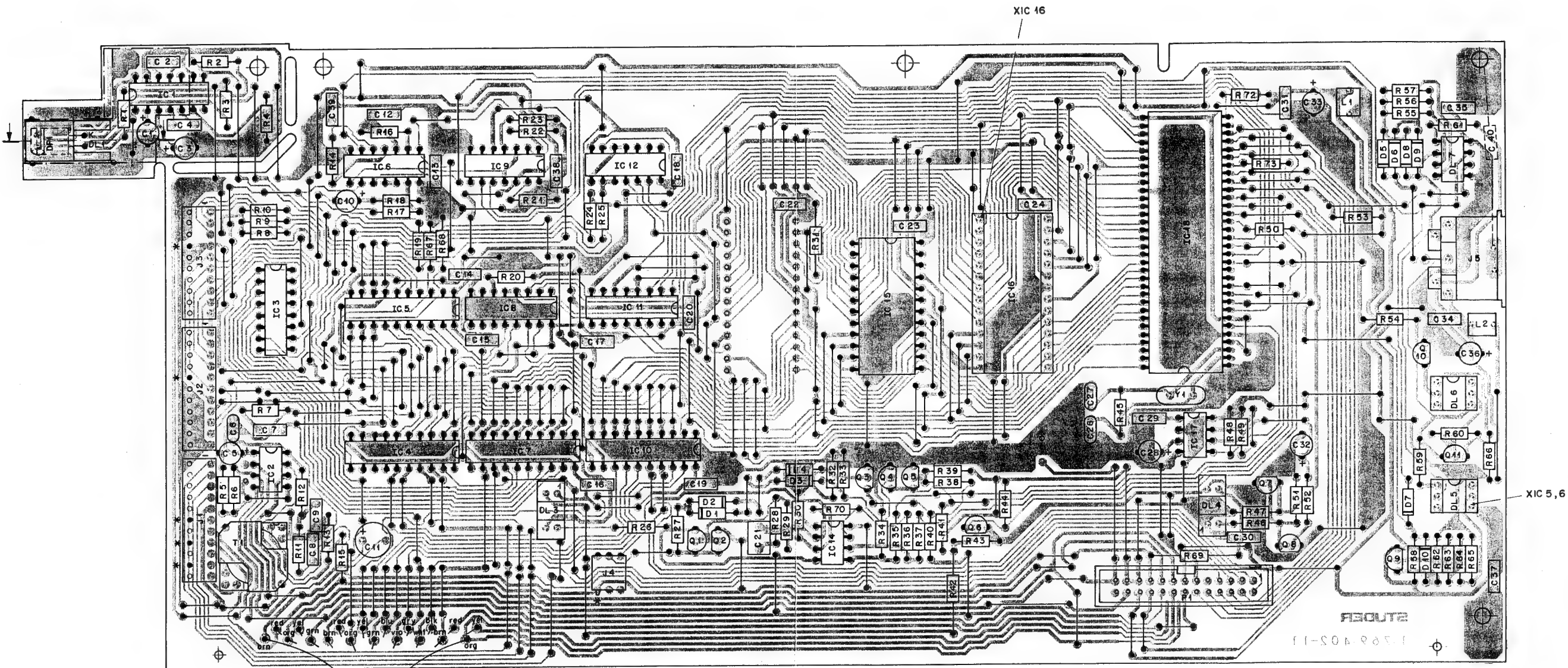


**MICROPROCESSOR PCB 1.769.404.20 B226—S**

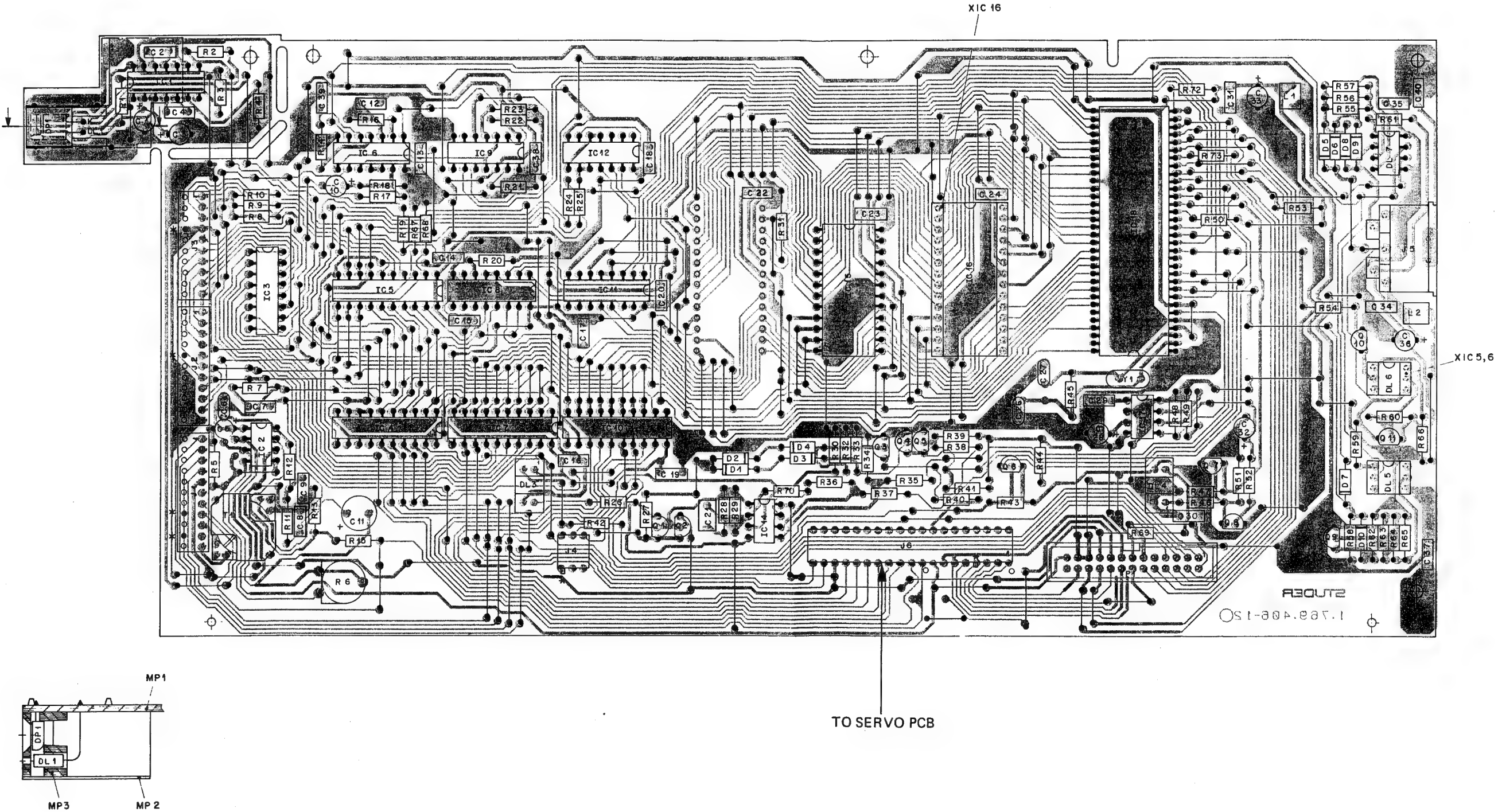




MICROPROCESSOR PCB 1.769.404.20 B226-S



MICROPROCESSOR PCB 1.769.407.20 ★ B226-S



★ CIRCUIT DIAGRAM EQUAL TO 1.769.404.20, CONNECTION TO SERVO PCB IS SEPARATELY LISTED → INTERCONNECTION CABLE 1.769.457.00



## MICROPROCESSOR PCB 1.769.407.20 B226-S

| IND.     | POS.NO.    | PART NO. | VALUE    | SPECIFICATIONS / EQUIVALENT      | MANUF. | IND.     | POS.NO.    | PART NO. | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF. |
|----------|------------|----------|----------|----------------------------------|--------|----------|------------|----------|-------|-----------------------------|--------|
| C.....1  | 59.22.6100 | 10 u     | 10V ± e1 | *** all capacitor 10K / 50 V *** |        | R.....5  | 57.11.3751 | 750      |       | 1in                         |        |
| C.....2  | 59.06.0102 | 1 n      | 10V ± e1 | *** otherwise noted ***          |        | R.....6  | 57.02.3222 | 2-2      | W     |                             |        |
| C.....3  | 59.22.3470 | 47 u     | 10V ± e1 |                                  |        | R.....7  | 57.11.3224 | 220      | W     |                             |        |
| C.....4  | 59.06.0103 | 10 n     | 10V ± e1 |                                  |        | R.....8  | 57.11.3472 | 4-7      | k     |                             |        |
| C.....5  | 59.22.3470 | 47 u     | 10V ± e1 |                                  |        | R.....9  | 57.11.3472 | 4-7      | W     |                             |        |
| C.....6  | 59.34.8331 | 330 p    | cer ± 2% |                                  |        | R.....10 | 57.11.3472 | 4-7      | k     |                             |        |
| C.....7  | 59.06.0333 | 33 n     |          |                                  |        | R.....11 | 57.11.3913 | 91       | W     | 1%                          |        |
| C.....8  | 59.06.5472 | 4-7 n    | 5%       |                                  |        | R.....12 | 57.11.3913 | 91       | k     | 1%                          |        |
| C.....9  | 59.26.5472 | 4-7 n    | 5%       |                                  |        | R.....13 | 57.11.3103 | 10       | k     |                             |        |
| C.....10 | 59.22.8109 | 1 u      | 10V ± e1 |                                  |        | R.....14 | 57.11.3103 | 10       | W     |                             |        |
| C.....11 | 59.22.4221 | 220 u    | 16V ± e1 |                                  |        | R.....15 | 57.11.3103 | 10       | W     |                             |        |
| C.....12 | 59.06.0102 | 1 n      |          |                                  |        | R.....16 | 57.11.3103 | 10       | W     |                             |        |
| C.....13 | 59.06.0223 | 22 n     |          |                                  |        | R.....17 | 57.11.3683 | 68       | W     |                             |        |
| C.....14 | 59.06.0102 | 1 n      |          |                                  |        | R.....18 | 57.11.3333 | 33       | k     |                             |        |
| C.....15 | 59.06.0223 | 22 n     |          |                                  |        | R.....19 | 57.11.3103 | 10       | k     |                             |        |
| C.....16 | 59.06.0223 | 22 n     |          |                                  |        | R.....20 | 57.11.3103 | 10       | W     |                             |        |
| C.....17 | 59.06.0223 | 22 n     |          |                                  |        | R.....21 | 57.11.3103 | 10       | k     |                             |        |
| C.....18 | 59.06.0223 | 22 n     |          |                                  |        | R.....22 | 57.11.3103 | 10       | k     |                             |        |
| C.....19 | 59.06.0223 | 22 n     |          |                                  |        | R.....23 | 57.11.3103 | 10       | W     |                             |        |
| C.....20 | 59.26.0223 | 22 n     |          |                                  |        | R.....24 | 57.11.3124 | 120      | W     |                             |        |
| C.....21 | 59.06.0105 | 1 u      |          |                                  |        | R.....25 | 57.11.3104 | 100      | k     |                             |        |
| C.....22 | 59.06.0223 | 22 n     |          |                                  |        | R.....26 | 57.11.3021 | 820      |       |                             |        |
| C.....23 | 59.06.0223 | 22 n     |          |                                  |        | R.....27 | 57.11.3920 | 82       |       |                             |        |
| C.....24 | 59.06.0223 | 22 n     |          |                                  |        | R.....28 | 57.11.3472 | 4-7      | k     |                             |        |
| C.....25 | 59.34.2330 | 33 p     | cer      |                                  |        | R.....29 | 57.11.3473 | 47       | W     |                             |        |
| C.....26 | 59.34.2330 | 33 p     | cer      |                                  |        | R.....30 | 57.11.3189 | 1-8      |       |                             |        |
| C.....27 | 59.22.6100 | 10 u     | 10V ± e1 |                                  |        | R.....31 | 57.11.3103 | 10       | W     |                             |        |
| C.....28 | 59.06.0104 | 100 n    |          |                                  |        | R.....32 | 57.11.3101 | 100      |       |                             |        |
| C.....29 | 59.06.0223 | 22 n     |          |                                  |        | R.....33 | 57.11.3101 | 100      |       |                             |        |
| C.....30 | 59.06.0223 | 22 n     |          |                                  |        | R.....34 | 57.11.3104 | 100      | W     |                             |        |
| C.....31 | 59.06.0223 | 22 n     |          |                                  |        | R.....35 | 57.11.3564 | 560      | k     |                             |        |
| C.....32 | 59.22.8109 | 1 u      | 10V ± e1 |                                  |        | R.....36 | 57.11.3104 | 100      | W     |                             |        |
| C.....33 | 59.22.3470 | 47 u     | 10V ± e1 |                                  |        | R.....37 | 57.11.3564 | 560      | k     |                             |        |
| C.....34 | 59.06.0223 | 22 n     |          |                                  |        | R.....38 | 57.11.3473 | 47       | k     |                             |        |
| C.....35 | 59.06.0223 | 22 n     |          |                                  |        | R.....39 | 57.11.3563 | 48       | W     |                             |        |
| C.....36 | 59.22.3470 | 47 u     | 10V ± e1 |                                  |        | R.....40 | 57.11.3473 | 47       | k     |                             |        |
| C.....37 | 59.06.0223 | 22 n     |          |                                  |        | R.....41 | 57.11.3472 | 4-7      | W     |                             |        |
| C.....38 | 59.06.0223 | 22 n     |          |                                  |        |          |            |          |       |                             |        |

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STUDER (02) 88/10/24 SW MICROPROCESSOR-BOARD

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| IND.          | POS.NO.    | PART NO. | VALUE                                | SPECIFICATIONS / EQUIVALENT | MANUF. | IND.     | POS.NO.      | PART NO. | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF. |
|---------------|------------|----------|--------------------------------------|-----------------------------|--------|----------|--------------|----------|-------|-----------------------------|--------|
| (01) C.....39 | 59.06.0102 | 1 n      |                                      |                             |        | R.....42 | 57.11.3472   | 4-7      | k     |                             |        |
| C.....40      | 59.32.4102 | 1 n      | cer                                  |                             |        | R.....43 | 57.11.3472   | 4-7      | k     |                             |        |
| D.....1       | 50.04.1101 | 3-9V     | ZENER DIODE                          |                             |        | R.....44 | 57.11.3472   | 4-7      | k     |                             |        |
| D.....2       | 50.04.1101 | 3-9V     | ZENER DIODE                          |                             |        | R.....45 | 57.11.3105   | 1        | M     |                             |        |
| D.....3       | 50.04.0125 | 1N4448   | general purpose                      |                             |        | R.....46 | 57.11.3472   | 4-7      | W     |                             |        |
| D.....4       | 50.04.0125 | 1N4448   | general purpose                      |                             |        | R.....47 | 57.11.3472   | 4-7      | W     |                             |        |
| D.....5       | 50.04.0125 | 1N4448   | general purpose                      |                             |        | R.....48 | 57.11.3472   | 4-7      | W     |                             |        |
| D.....6       | 50.04.0125 | 1N4448   | general purpose                      |                             |        | R.....49 | 57.11.3271   | 270      |       |                             |        |
| D.....7       | 50.04.0125 | 1N4448   | general purpose                      |                             |        | R.....50 | 57.11.3103   | 10       | k     |                             |        |
| D.....8       | 50.04.0125 | 1N4448   | general purpose                      |                             |        | R.....51 | 57.11.3472   | 4-7      | k     |                             |        |
| D.....9       | 50.04.0125 | 1N4448   | general purpose                      |                             |        | R.....52 | 57.11.3103   | 10       | k     |                             |        |
| D.....10      | 50.04.0125 | 1N4448   | general purpose                      |                             |        | R.....53 | 57.11.3104   | 100      | k     |                             |        |
| DL.....1      | 50.24.2119 | MY 57124 | LED                                  |                             |        | R.....54 | 57.11.3103   | 10       | k     |                             |        |
| DL.....3      | 50.04.3001 | DP8804   | OPTO-COUPLER                         |                             |        | R.....55 | 57.11.3272   | 2-7      | k     |                             |        |
| DL.....4      | 50.04.3001 | DP8804   | OPTO-COUPLER                         |                             |        | R.....56 | 57.11.3272   | 2-7      | k     |                             |        |
| DL.....5      | 50.99.0126 | 4N28     | OPTO-COUPLER                         |                             |        | R.....57 | 57.11.3153   | 15       | W     |                             |        |
| DL.....6      | 50.99.0126 | 4N28     | OPTO-COUPLER                         |                             |        | R.....58 | 57.11.3021   | 820      |       |                             |        |
| DL.....7      | 50.99.0111 | MC76     | DUAL OPTO-COUPLER                    |                             |        | R.....59 | 57.11.3102   | 1        | k     |                             |        |
| DP.....1      | 50.24.2136 | BP4 50   | PHOTO DIODE                          |                             |        | R.....60 | 57.11.3561   | 560      |       |                             |        |
| IC.....1      | 50.11.0121 | T8A2800  | IR-RECEIVER                          |                             |        | R.....61 | 57.11.3682   | 6-8      | k     |                             |        |
| IC.....2      | 50.09.0114 | L 272 M  | DUAL POWER OP-AMP                    |                             |        | R.....62 | 57.11.3103   | 10       | k     |                             |        |
| IC.....3      | 50.05.0266 | ULN2003  | 7-FAÇH DARLINGTON DRIVER             |                             |        | R.....63 | 57.11.3223   | 22       | k     |                             |        |
| IC.....4      | 50.17.1574 | HC574    | DUAL D-TYPE FLIP FLOP                |                             |        | R.....64 | 57.11.3392   | 3-9      | k     |                             |        |
| IC.....5      | 50.17.1645 | HC645    | DUAL BUS TRANSCEIVER                 |                             |        | R.....65 | 57.11.3102   | 1        | k     |                             |        |
| IC.....6      | 50.17.1014 | HC 14    | HEX SCHMITT TRIGGER INVERTER         |                             |        | R.....66 | 57.11.3102   | 1        | k     |                             |        |
| IC.....7      | 50.17.1574 | HC574    | DUAL D-TYPE FLIP FLOP                |                             |        | R.....67 | 57.11.3472   | 4-7      | k     |                             |        |
| IC.....8      | 50.17.1139 | NC138    | 3 TO 8 LINE DECODER                  |                             |        | R.....68 | 57.11.3472   | 4-7      | k     |                             |        |
| IC.....9      | 50.17.1074 | HC 74    | DUAL D-TYPE FF WITH PRESET AND CLEAR |                             |        | R.....69 | 57.11.3821   | 820      |       |                             |        |
| IC.....10     | 50.17.1574 | HC574    | DUAL D-TYPE FLIP FLOP                |                             |        | R.....70 | 57.11.3103   | 10       | k     |                             |        |
| IC.....11     | 50.17.1138 | NC138    | 3 TO 8 LINE DECODER                  |                             |        | R.....71 | 57.11.3103   | 10       | k     |                             |        |
| IC.....12     | 50.17.1000 | HC 00    | QUAD2-INPUT NAND GATE                |                             |        | R.....72 | 57.11.3103   | 10       | k     |                             |        |
| IC.....14     | 50.09.0107 | RC4559   | DUAL OP-AMP                          |                             |        | R.....73 | 57.11.3561   | 560      |       |                             |        |
| IC.....15     | 50.14.0107 | HM6116LP | 2K8 RAM                              |                             |        | F.....1  | 1.022.602.00 |          |       | DISPLAY TRANSFORMER         |        |

STUDER (02) 88/10/24 SW MICROPROCESSOR-BOARD

PL 1.769.407.20 PAGE 2

STUDER (02) 88/10/24 SW MICROPROCESSOR-BOARD

PL 1.769.407.20 PAGE 5

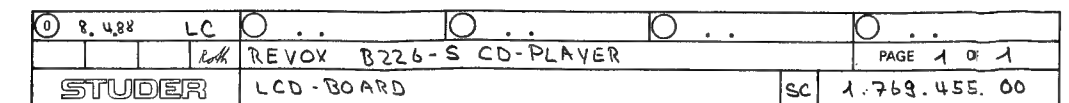
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|-------------------------|--------------|-----------|-------------------------------------|-----------------------------|--------|---------------|------------------------------|---------------|---------------------|-----------------------------|--------|
| IC.....16               | 50.14.0153   | HM27256F1 | B126/226-S CD-SOFTWARE 1.769.403.20 |                             |        | Y.....1       | 89.01.0560                   |               | 4.9152 MHZ ± QUARTZ | HC 49 U                     |        |
| IC.....17               | 50.11.0122   | LT1705    | RESET GENERATOR                     |                             |        |               |                              |               |                     |                             |        |
| IC.....18               | 50.16.0121   | 63403-Y   | MICROPROCESSOR                      |                             |        |               |                              |               |                     |                             |        |
| J.....1                 | 54.21.0291   | 11 PIN    | CIS-SOCKET STRIP                    |                             |        |               |                              |               |                     |                             |        |
| J.....2                 | 54.01.0291   | 11 PIN    | CIS-SOCKET STRIP                    |                             |        |               |                              |               |                     |                             |        |
| J.....3                 | 54.01.0290   | 10 PIN    | CIS-SOCKET STRIP                    |                             |        |               |                              |               |                     |                             |        |
| J.....4                 | 54.21.0249   | 3 PIN     | CIS-SOCKET STRIP                    |                             |        |               |                              |               |                     |                             |        |
| J.....5                 | 54.20.2001   | 6 PIN     | DIN JACK SOCKET                     |                             |        |               |                              |               |                     |                             |        |
| J.....6                 | 54.21.0312   | 19 PIN    | CIS-SOCKET STRIP                    |                             |        |               |                              |               |                     |                             |        |
| L.....1                 | 62.32.3479   | 4-7 uH    | HF-CHUKE                            |                             |        |               |                              |               |                     |                             |        |
| L.....2                 | 62.32.3479   | 4-7 uH    | HF-CHUKE                            |                             |        |               |                              |               |                     |                             |        |
| MP.....1                | 1.769.406.11 |           | MICROPROCESSOR PCB                  | St                          |        |               |                              |               |                     |                             |        |
| MP.....2                | 1.769.406.12 |           | MICROPROCESSOR PCB                  | St                          |        |               |                              |               |                     |                             |        |
| MP.....3                | 1.769.330.01 |           | IR-SHIELD-CASE                      | St                          |        |               |                              |               |                     |                             |        |
| P.....1                 | 54.14.2003   | 26 PIN    | FLAT CABLE CONNECTOR                |                             |        |               |                              |               |                     |                             |        |
| Q.....1                 | 50.33.0351   | AC 327-25 |                                     |                             |        |               |                              |               |                     |                             |        |
| Q.....2                 | 50.03.0343   | BC 337-25 |                                     |                             |        |               |                              |               |                     |                             |        |
| Q.....3                 | 50.33.0319   | BC 557B   | BC 307B, BC 560B                    |                             |        |               |                              |               |                     |                             |        |
| Q.....4                 | 50.03.0436   | BC 547B   | BC 237B, BC 550B                    |                             |        |               |                              |               |                     |                             |        |
| Q.....5                 | 50.33.0436   | BC 547B   | BC 237B, BC 550B                    |                             |        |               |                              |               |                     |                             |        |
| Q.....6                 | 50.33.0436   | BC 547B   | BC 237B, BC 550B                    |                             |        |               |                              |               |                     |                             |        |
| Q.....7                 | 50.33.0436   | BC 547B   | BC 237B, BC 550B                    |                             |        |               |                              |               |                     |                             |        |
| Q.....8                 | 50.33.0436   | BC 547B   | BC 237B, BC 550B                    |                             |        |               |                              |               |                     |                             |        |
| Q.....9                 | 50.33.0436   | BC 547B   | BC 237B, BC 550B                    |                             |        |               |                              |               |                     |                             |        |
| Q.....10                | 50.03.0436   | BC 547B   | BC 237B, BC 550B                    |                             |        |               |                              |               |                     |                             |        |
| Q.....11                | 50.03.0351   | BC 327-25 |                                     |                             |        |               |                              |               |                     |                             |        |
| R.....1                 | 57.11.3101   | 100       | *** all resistors 5% ± 25W ***      |                             |        | (01) 6-10-88  | Funkschutzzeichen            |               |                     |                             |        |
| R.....2                 | 57.11.3392   | 3-9       | *** general purpose ***             |                             |        | (02) 24-10-88 | Funkschutzzeichen            |               |                     |                             |        |
| R.....3                 | 57.11.3991   | 390       | *** unless otherwise noted ***      |                             |        |               | el=electrolytic, cer=ceramic |               |                     |                             |        |
| R.....4                 | 57.11.3102   | 1         |                                     |                             |        |               | MANUFACTURER: St-Studer      |               |                     |                             |        |
| STUDER (02) 88/10/24 SW |              |           | MICROPROCESSOR-BOARD                | PL 1.769.407.20 PAGE 3      |        | DRIG 88/09/19 | (01) 88/10/06                | (02) 88/10/24 |                     |                             |        |
|                         |              |           |                                     |                             |        |               |                              |               |                     |                             |        |

STUDER (02) 88/10/24 SW MICROPROCESSOR-BOARD

PL 1.769.407.20 PAGE 3

STUDER (02) 88/10/24 SW MICROPROCESSOR-BOARD

PL 1.769.407.20 PAGE 6

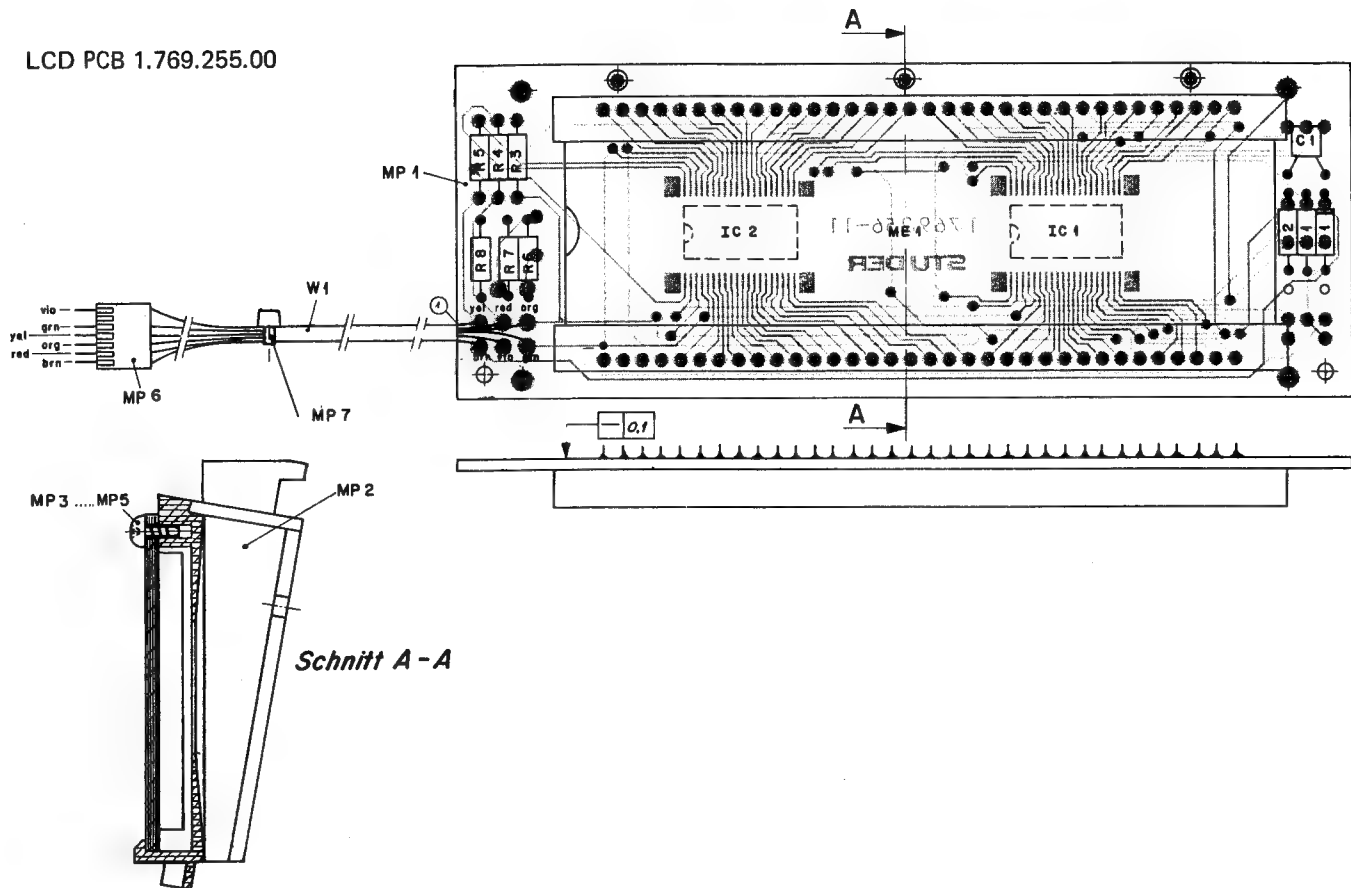




LCD PCB 1.769.255.00 B126, 1.769.455.00 B226-S



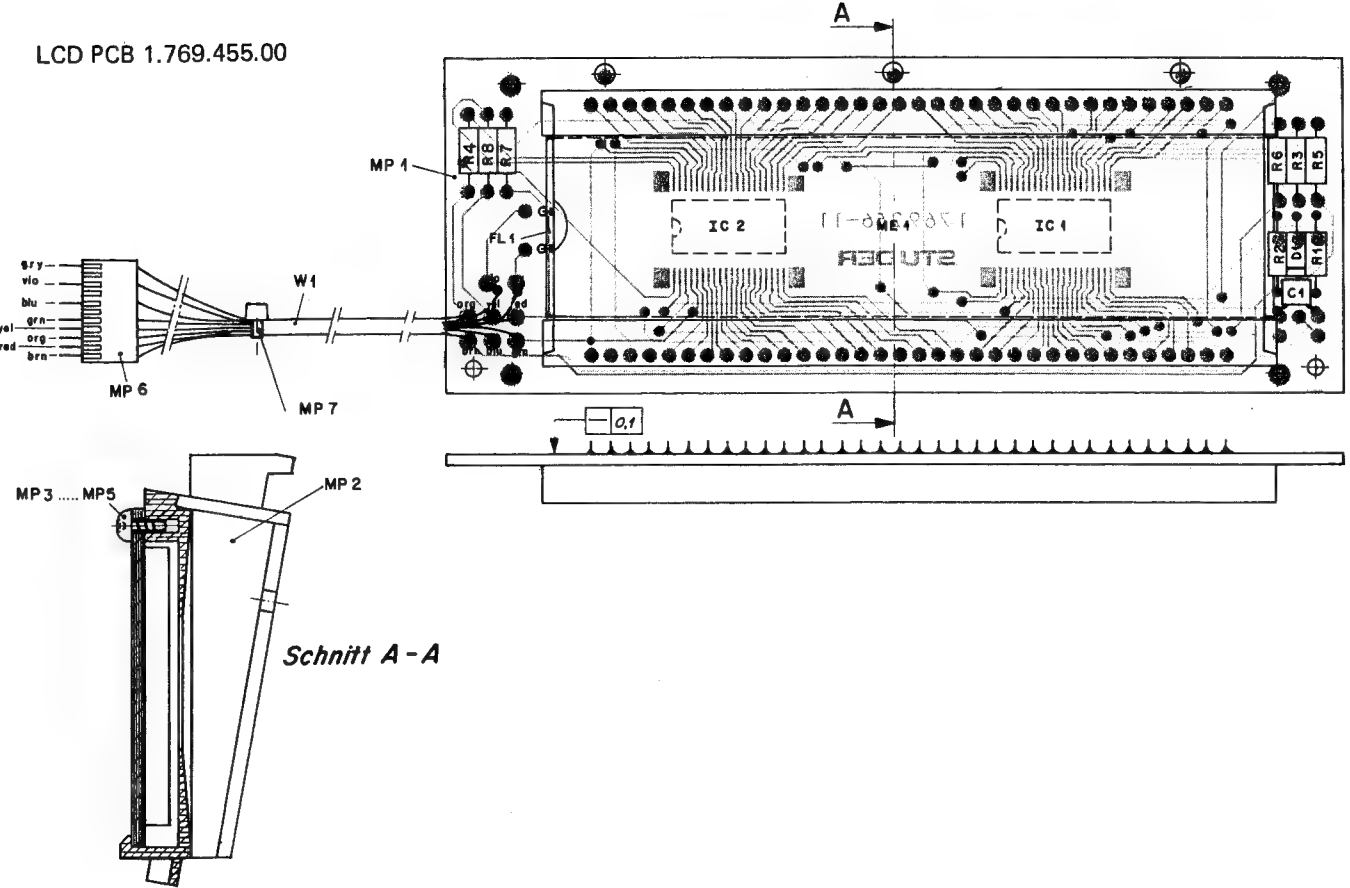
LCD PCB 1.769.255.00



| IND. | POS.-NO. | PART NO.     | VALUE    | SPECIFICATIONS / EQUIVALENT | MANUF. |
|------|----------|--------------|----------|-----------------------------|--------|
|      | C.....1  | 59-32-4152   | 1.5 n    | ceramic, 50V, 20%           |        |
|      | D.....1  | 50-04-1101   | 3.9 V    | zener, .4W                  |        |
|      | IC.....1 | 50-16-0112   | PCE 2111 | LCD-DRIVER                  |        |
|      | IC.....2 | 50-16-0112   | PCE 2111 | LCD-DRIVER                  |        |
|      | ME.....1 | 1.769.250-01 |          | LCD                         |        |
|      | MP.....1 | 1.769.250-11 |          | LCD-PCB                     | St     |
|      | MP.....2 | 1.769.255-01 |          | BLEND                       |        |
|      | MP.....3 | 20-21-7102   |          | SCREW                       |        |
|      | MP.....4 | 20-21-7102   |          | SCREW                       |        |
|      | MP.....5 | 20-21-7102   |          | SCREW                       |        |
|      | MP.....6 | 54-01-0233   | 7 POLE   | CIS PIN CASE                |        |
| (00) | MP.....7 | 35-03-0109   |          | TV-RAP, PLASTIC             |        |
| (01) | MP.....7 | 35-03-0160   |          | TV-RAP, PLASTIC             |        |
|      | R.....1  | 57-11-9081   | 680      | *** all resistors 5% ***    |        |
|      | R.....2  | 57-11-9105   | 1 M      |                             |        |
|      | R.....3  | 57-11-4473   | 47 k     |                             |        |
|      | R.....4  | 57-11-4473   | 47 k     |                             |        |
|      | R.....5  | 57-11-4473   | 47 k     |                             |        |
|      | R.....6  | 57-11-4473   | 47 k     |                             |        |
|      | R.....7  | 57-11-4473   | 47 k     |                             |        |
|      | R.....8  | 57-11-4473   | 47 k     |                             |        |
|      | W.....1  | 1.769.255-93 |          | WIRING-LIST LCD-BOARD       | St     |

(01) 14-10-87 easier production  
MANUFACTURER: St-Studer  
ORIG 05/07/04 (01) 07/10/14  
STUDER (01) 07/10/14 STU LCD-BOARD PL 1.769.255-00 PAGE 1

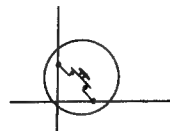
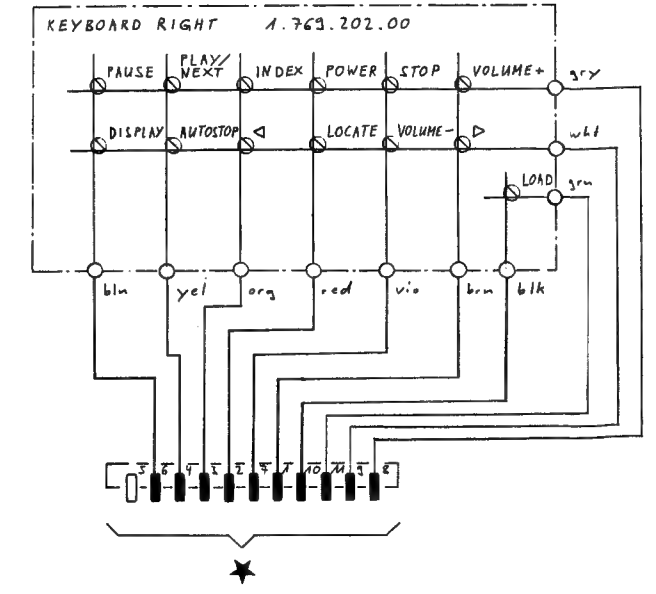
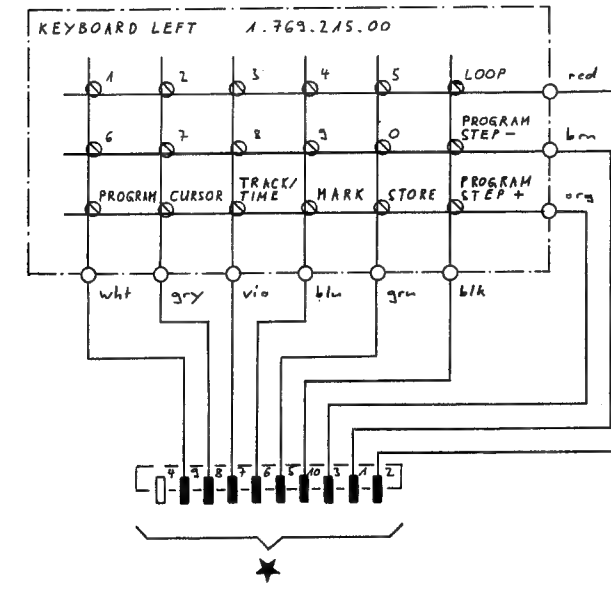
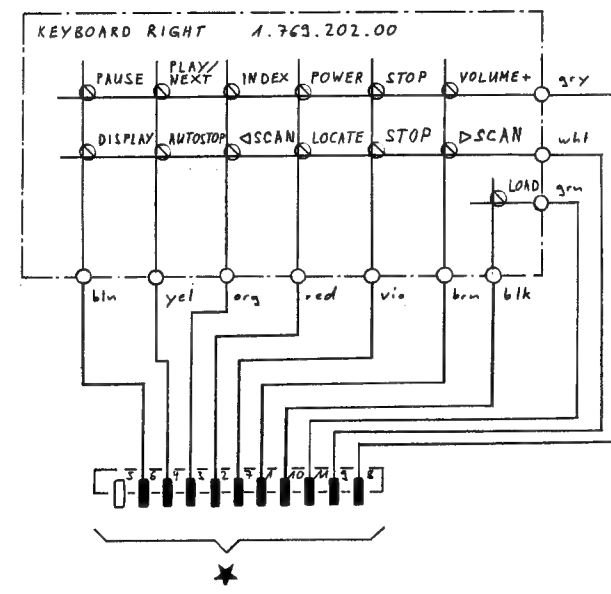
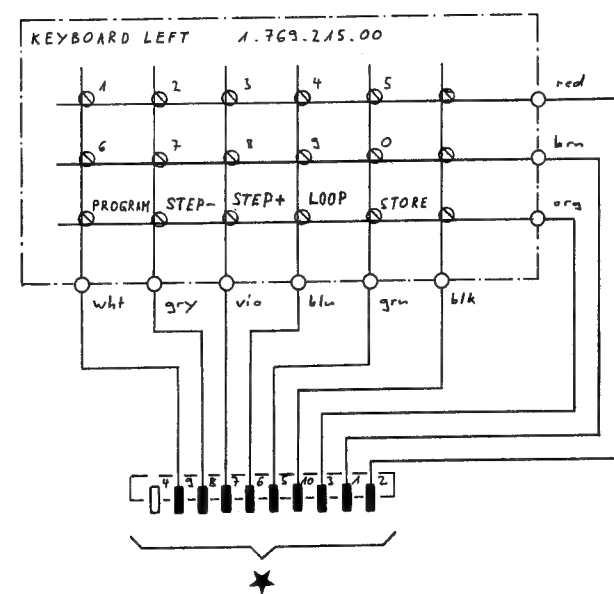
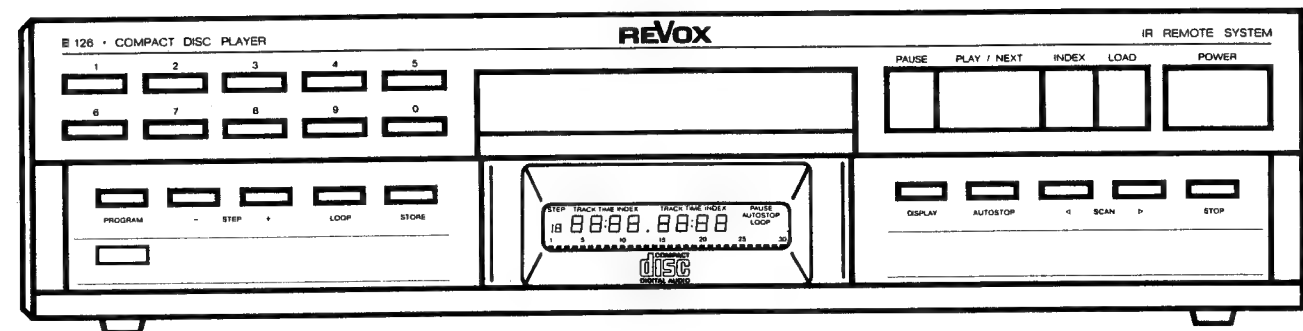
LCD PCB 1.769.455.00



| IND. | POS.-NO. | PART NO.     | VALUE    | SPECIFICATIONS / EQUIVALENT | MANUF. |
|------|----------|--------------|----------|-----------------------------|--------|
|      | C.....1  | 59-32-4152   | 1.5 n    | ceramic, 50V, 20%           |        |
|      | D.....1  | 50-04-1101   | 3.9 V    | zener, .4W                  |        |
|      | FL.....1 | 1.769.250-02 |          | FL-LAMP                     |        |
|      | IC.....1 | 50-16-0112   | PCE 2111 | LCD-DRIVER                  |        |
|      | IC.....2 | 50-16-0112   | PCE 2111 | LCD-DRIVER                  |        |
|      | ME.....1 | 1.769.250-01 |          | LCD                         |        |
|      | MP.....1 | 1.769.250-11 |          | LCD-PCB                     | St     |
|      | MP.....2 | 1.769.250-01 |          | BLEND                       |        |
|      | MP.....3 | 20-21-7102   |          | SCREW                       |        |
|      | MP.....4 | 20-21-7102   |          | SCREW                       |        |
|      | MP.....5 | 20-21-7102   |          | SCREW                       |        |
|      | MP.....6 | 54-01-0233   | 11 POLE  | CIS PIN CASE                |        |
|      | MP.....7 | 35-03-0109   |          | TV-RAP, PLASTIC             |        |
|      | R.....1  | 57-11-3681   | 680      | *** all resistors 5% ***    |        |
|      | R.....2  | 57-11-3105   | 1 M      |                             |        |
|      | R.....3  | 57-11-3473   | 47 k     |                             |        |
|      | R.....4  | 57-11-3473   | 47 k     |                             |        |
|      | R.....5  | 57-11-3473   | 47 k     |                             |        |
|      | R.....6  | 57-11-3473   | 47 k     |                             |        |
|      | R.....7  | 57-11-3473   | 47 k     |                             |        |
|      | R.....8  | 57-11-3473   | 47 k     |                             |        |
|      | W.....1  | 1.769.250-93 |          | WIRING-LIST LCD-BOARD       | St     |

MANUFACTURER: St-Studer  
ORIG 08/01/07  
STUDER (00) 08/01/07 DR LCD-BOARD 02265 PL 1.769.455-00 PAGE 1

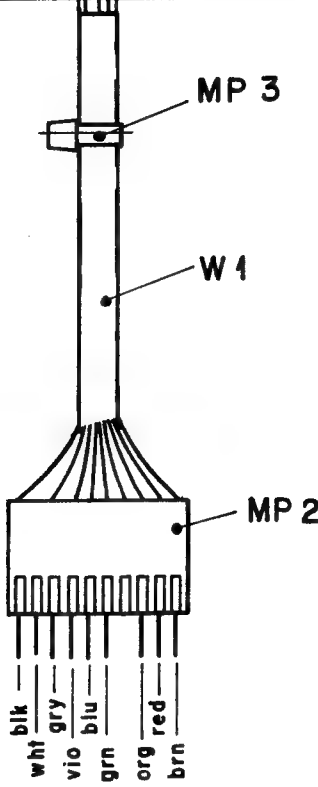
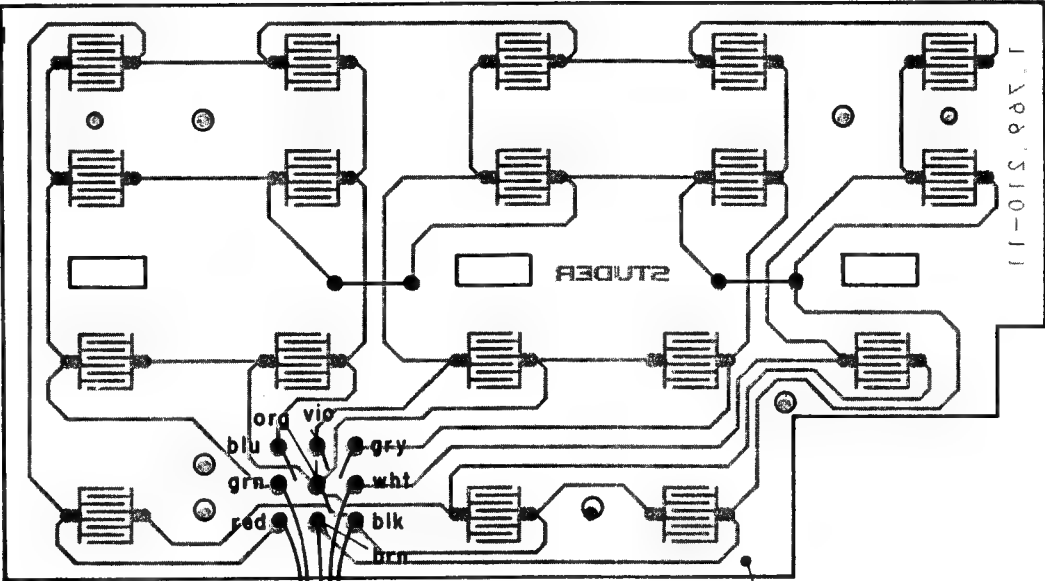
KEYBOARD LEFT/RIGHT 1.769.215/202.00 B126/226-S



★ TO SERVO PCB

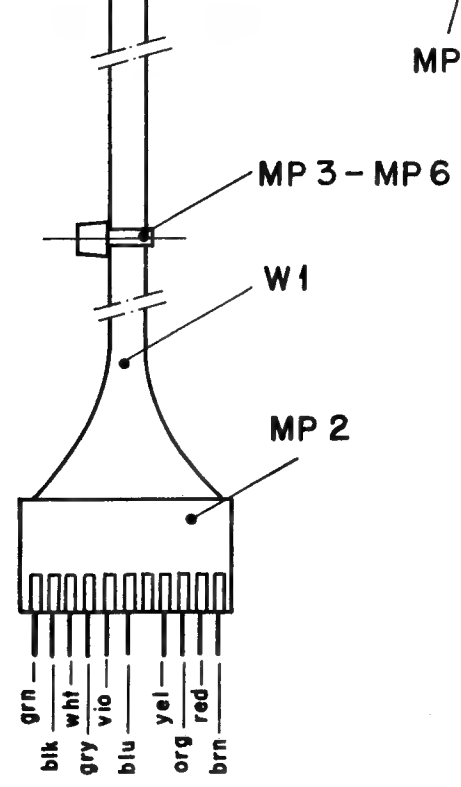
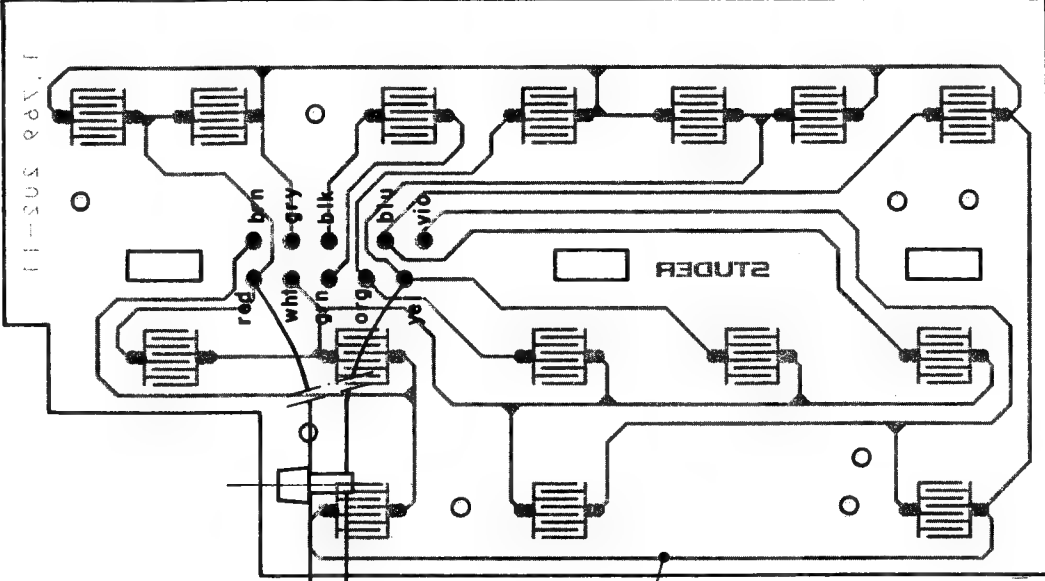
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|--------|--------|-----------|------|---------------------|--|--|----|---------------|--|----------|
| 0      | 120885 | RH        |      |                     |  |  |    |               |  |          |
|        |        | RH        | 8226 | COM'ACT DISC PLAYER |  |  |    |               |  |          |
|        |        |           |      |                     |  |  |    |               |  | PAGE 101 |
| STUDER |        | KEYBOARDS |      | A. 769.202.00       |  |  | SC | A. 769.215.00 |  |          |

KEYBOARD LEFT/RIGHT 1.769.215/202.00 B126/226-S



| IND. | POS.NO. | PART NO.     | VALUE   | SPECIFICATIONS / EQUIVALENT | MANUF. |
|------|---------|--------------|---------|-----------------------------|--------|
| MP   | 1       | 1.769.210-11 | 10 POLE | KEYBOARD-PCB LEFT           | St     |
| MP   | 2       | 54.01-0266   |         | CIS PIN CASE                |        |
| MP   | 3       | 35.03-0109   |         | TY-RAP                      |        |
| W    | 1       | 1.769.215-93 |         | WIRING-LIST KEYBOARD LEFT   | St     |

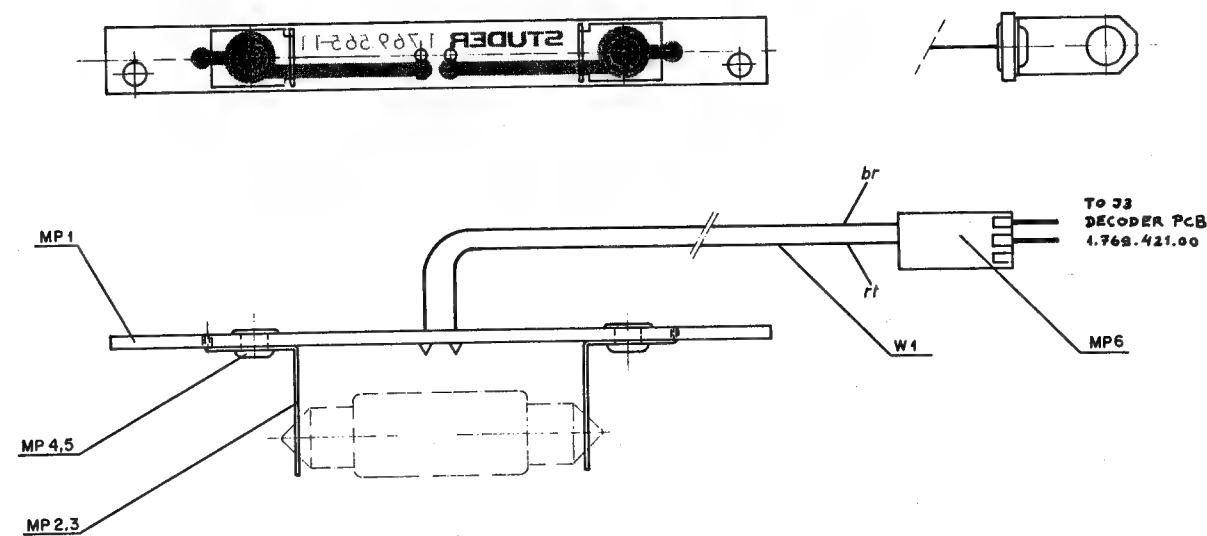
MANUFACTURER: St-Studer  
ORIG 85/07/04  
STUDER (00) 85/07/04 DR KEYBOARD LEFT 1.769.215-00 PAGE 1



| IND. | POS.NO. | PART NO.     | VALUE   | SPECIFICATIONS / EQUIVALENT | MANUF. |
|------|---------|--------------|---------|-----------------------------|--------|
| MP   | 1       | 1.769.202-11 | 11 POLE | KEYBOARD-PCB RIGHT          | St     |
| MP   | 2       | 54.01-0229   |         | CIS PIN CASE                |        |
| MP   | 3       | 35.03-0109   |         | TY-RAP, PLASTIC             |        |
| MP   | 4       | 35.03-0109   |         | TY-RAP, PLASTIC             |        |
| MP   | 5       | 35.03-0109   |         | TY-RAP, PLASTIC             |        |
| MP   | 6       | 35.03-0109   |         | TY-RAP, PLASTIC             |        |
| W    | 1       | 1.769.202-93 |         | WIRING-LIST KEYBOARD RIGHT  | St     |

MANUFACTURER: St-Studer  
ORIG 85/07/07  
STUDER (00) 85/07/07 DR KEYBOARD RIGHT 1.769.202-00 PAGE 1

ILLUMINATION BOARD 1.769.565.00 B126



| END. | PDS NO. | PART NO.     | VALUE  | SPECIFICATIONS / EQUIVALENT | MANUF. |
|------|---------|--------------|--------|-----------------------------|--------|
|      | MP-***1 | 1 769-565-11 |        | ILLUMINATION-PCB            | St     |
|      | MP-***2 | 1 769-565-01 |        | LAMP-CLIP                   | St     |
|      | MP-***3 | 1 769-565-01 |        | LAMP-CLIP                   | St     |
|      | MP-***4 | 28-31-00-31  |        | RIVET                       |        |
|      | MP-***5 | 28-31-00-31  |        | RIVET                       |        |
|      | MP-***6 | 54-01-0260   | 3 POLE | CIS PIN CASE                |        |
|      | W-***1  | 1 769-565-93 |        | WIRING-LIST ILLUMINATION    | St     |

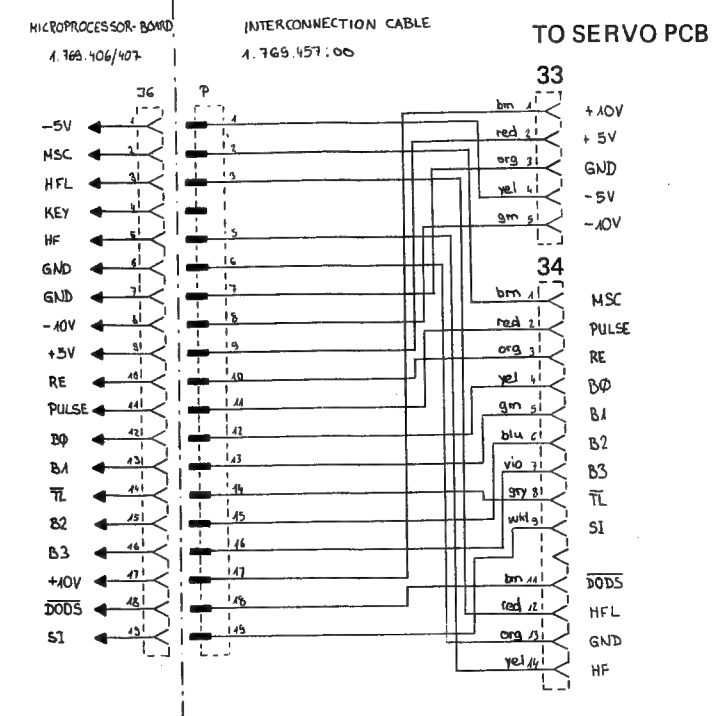
MANUFACTURER: St-Studer  
 ORIG 86/03/24

S T U D E R (00) 86/03/24 DR

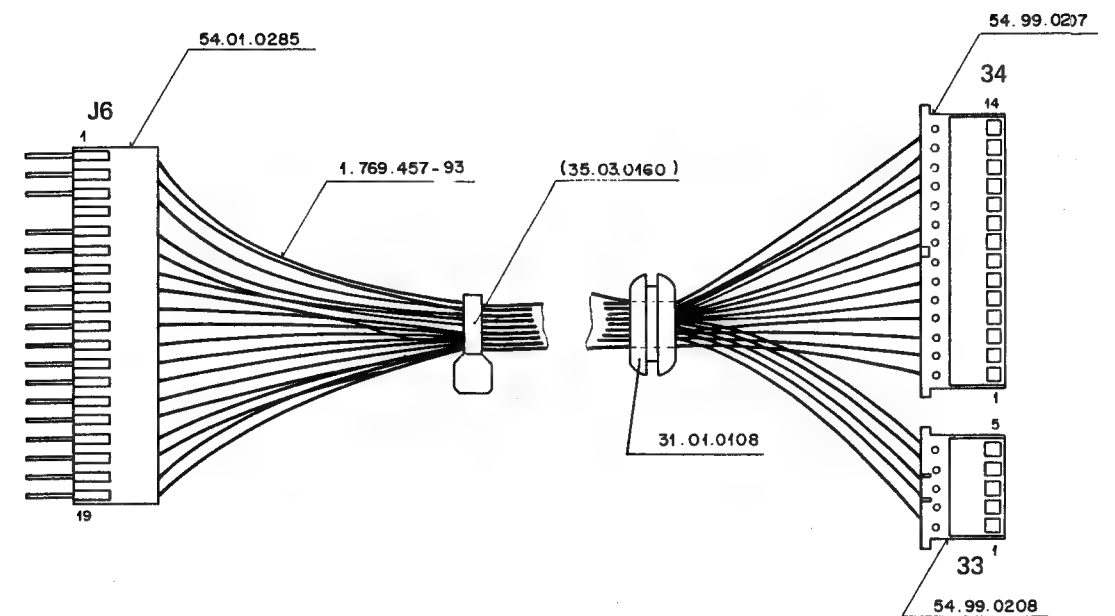
ILLUMINATION

1.769.565.00 PAGE 1

**INTERCONNECTION CABLE 1.769.457.00 B126/226-S**



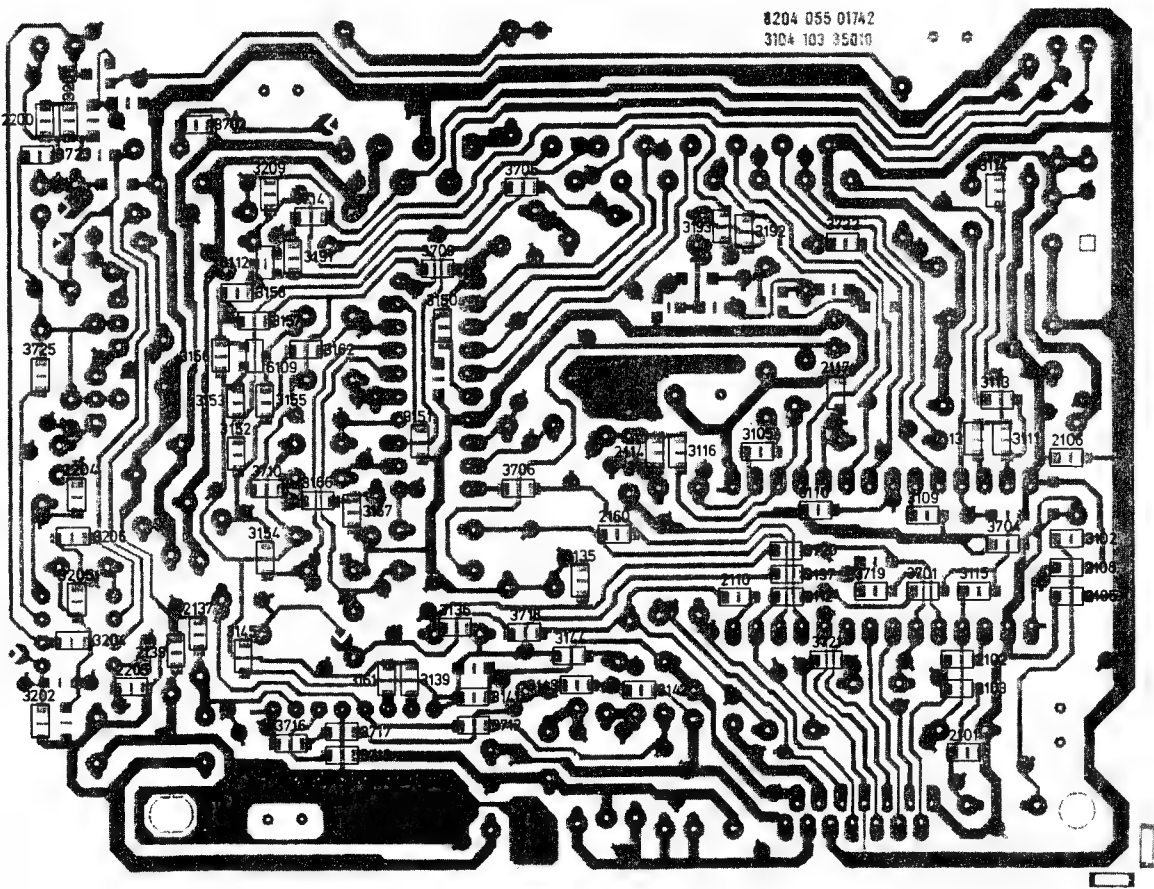
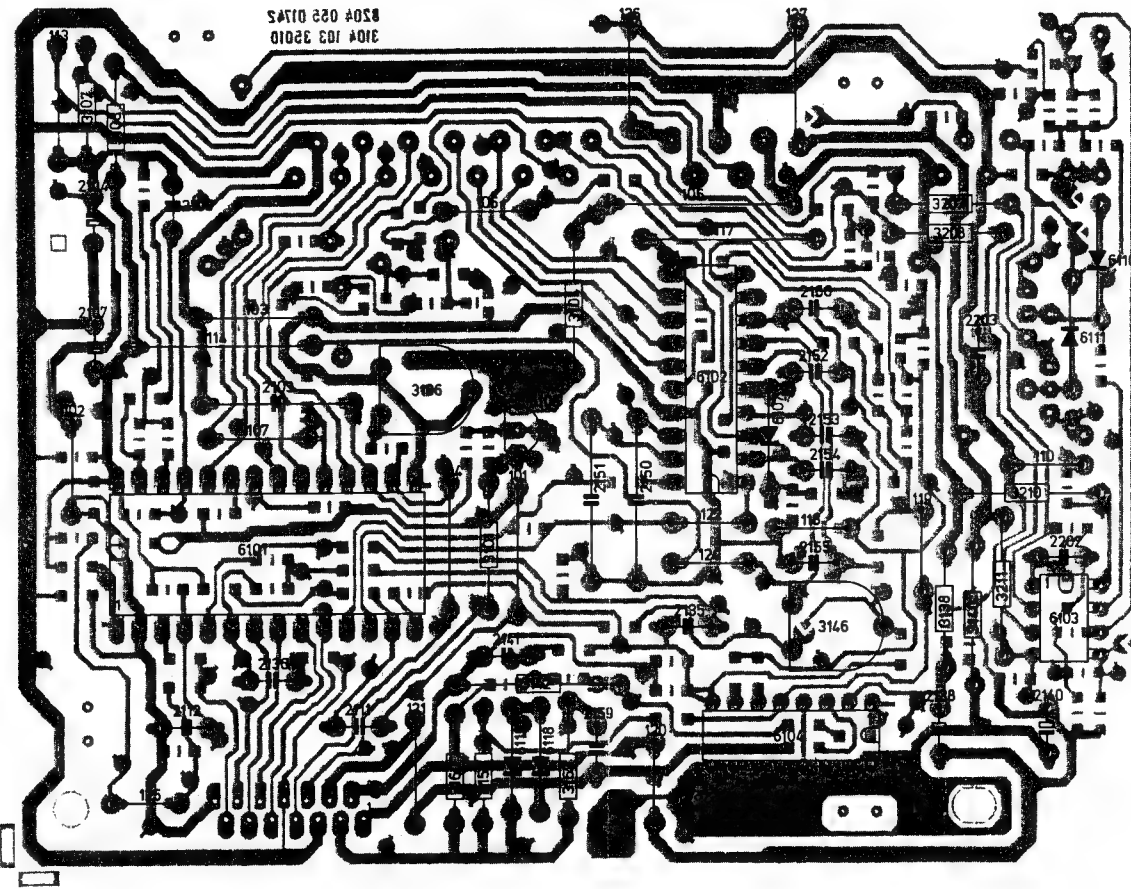
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| ① 47.08.88 S Wicki | ① ..                  | ① ..                                  | ① ..         | ① ..        |
|                    | 144                   | REVOX R126/R226-S COMPACT DISC PLAYER |              | PAGE 1 OF 1 |
| STUDER             | INTERCONNECTION CABLE | SC                                    | A.769.457.00 |             |







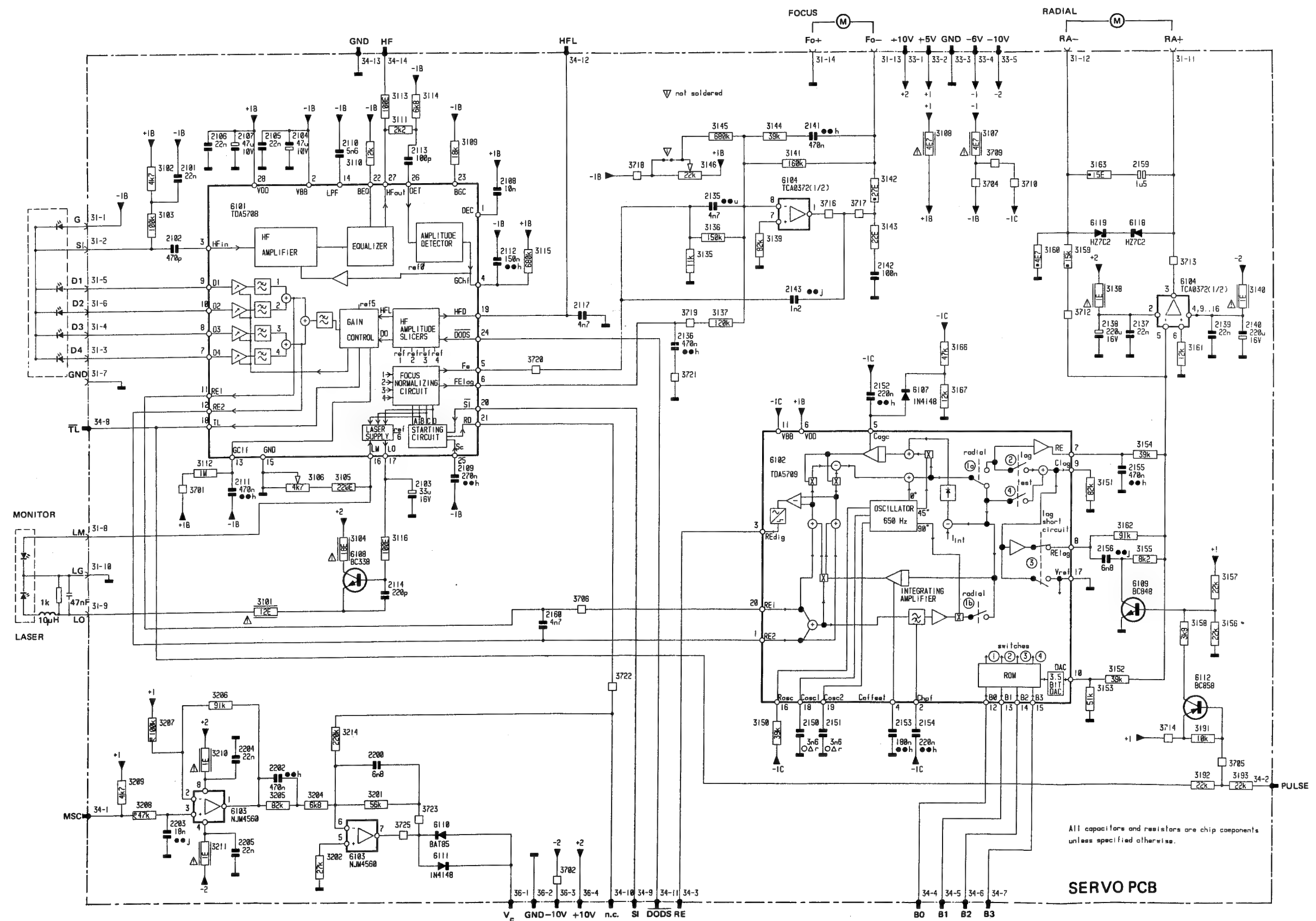
CD-DRIVE 1.769.117.00 B126, 1.769.118.00 B226-S



SERVO PCB

| SERVO BOARD CONNECTIONS                                                                                                                              |                                                                                                                                                                                                                                     |                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| TO CD DRIVE                                                                                                                                          | TO MICROPROCESSOR BOARD                                                                                                                                                                                                             | TO DISC MOTOR BOARD                            |
| 31 -1: G<br>-2: S+<br>-3: D4<br>-4: D3<br>-5: D1<br>-6: D2<br>-7: GND<br>-8: LM<br>-9: LO<br>-10: LG<br>-11: RA+<br>-12: RA-<br>-13: FO-<br>-14: FO+ | 33 -1: +10 V<br>-2: +5 V<br>-3: GND<br>-4: -6 V<br>-5: -10 V<br>34 -1: MSC<br>-2: PULSE<br>-3: RE<br>-4: B0<br>-5: B1<br>-6: B2<br>-7: B3<br>-8: TL<br>-9: SI<br>-10: not connected<br>-11: D0D5<br>-12: HFL<br>-13: GND<br>-14: HF | 36 -1: Vc<br>-2: GND<br>-3: -10 V<br>-4: +10 V |

CD-DRIVE 1.769.117.00 B126, 1.769.118.00 B226-S

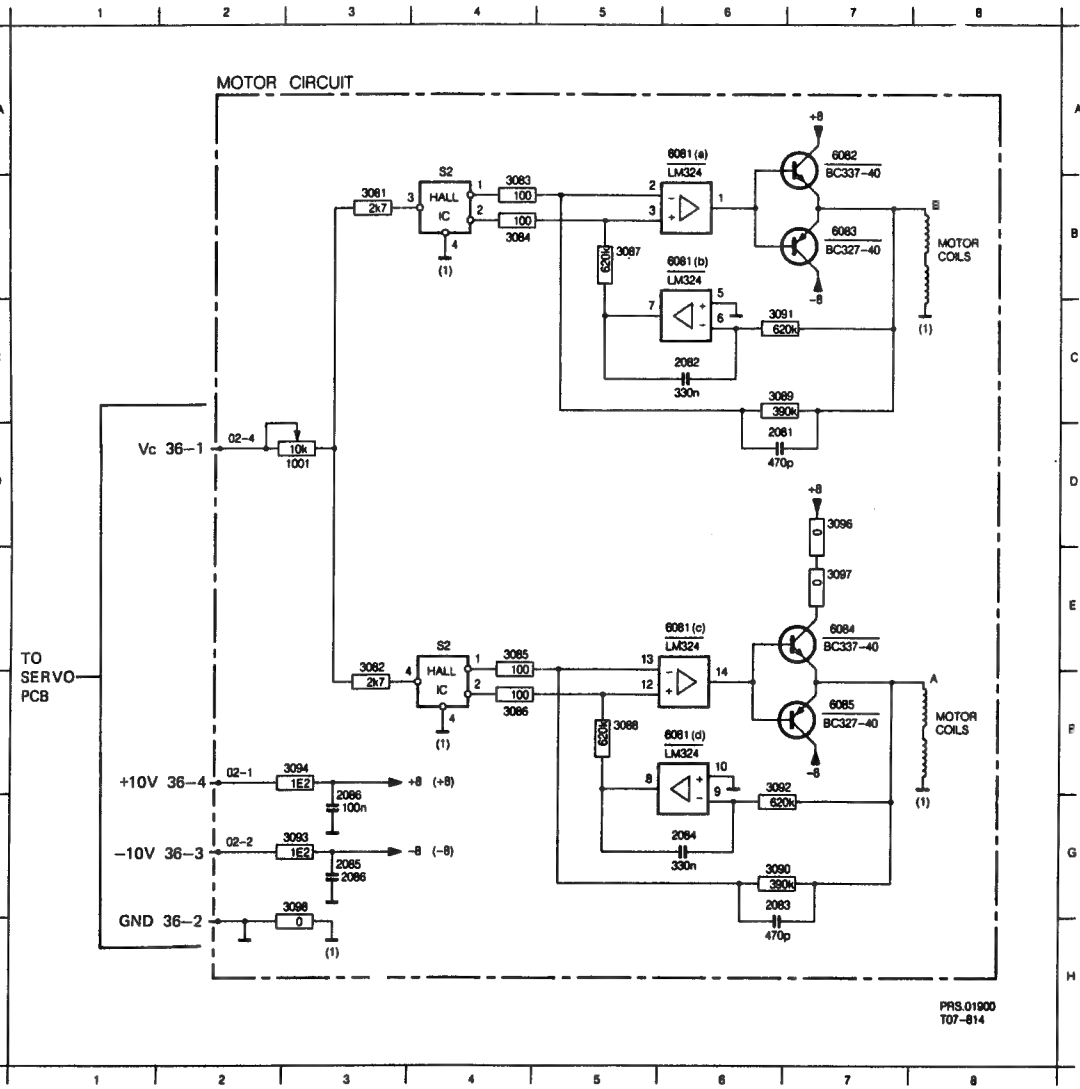




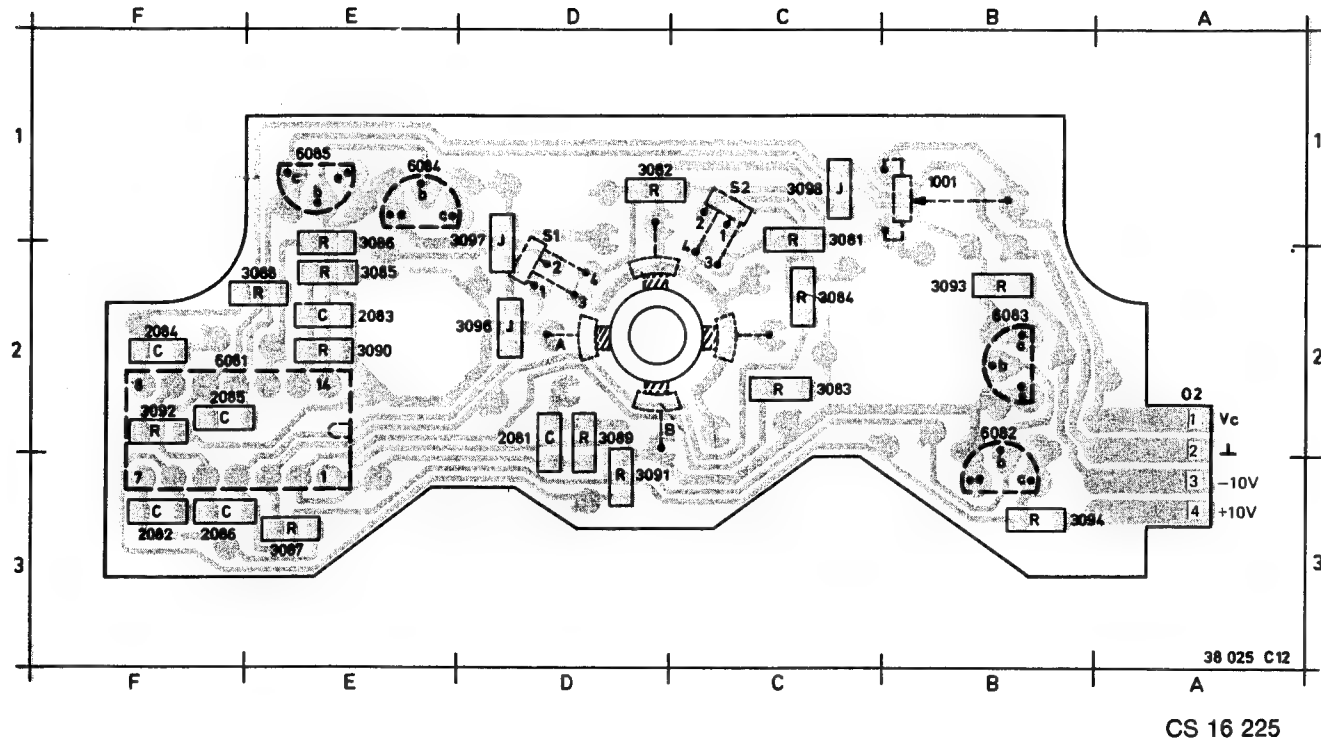
CD-DRIVE 1.769.117.00 B126, 1.769.118.00 B226-S

MOTOR PCB

|          |          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|----------|
| 1001 D 3 | 2084 G 8 | 3082 E 3 | 3086 F 4 | 3090 G 6 | 3094 F 3 | 6081 A 6 | 6082 A 7 |
| 2081 D 6 | 2085 G 3 | 3083 B 4 | 3087 B 5 | 3091 C 8 | 3096 D 7 | 6081 B 6 | 6083 B 7 |
| 2082 C 8 | 2086 G 3 | 3084 B 4 | 3088 F 5 | 3092 F 6 | 3097 E 7 | 6081 E 6 | 6084 E 7 |
| 2083 G 6 | 3081 B 3 | 3085 E 4 | 3089 C 6 | 3093 G 3 | 3098 G 3 | 6081 F 6 | 6085 F 7 |



MOTOR PCB



## 6. ERSATZTEILE SPARE PARTS PIECE DE RECHANGE

| INHALT | CONTENTS          | SOMMAIRE | Page |
|--------|-------------------|----------|------|
| 6.     | ERSATZTEILE       |          | 6/1  |
| 6.1    | EXPLOSIONSANSICHT |          | 6/3  |
| 6.     | SPARE PARTS       |          | 6/1  |
| 6.1    | EXPLODED VIEW     |          | 6/3  |
| 6.     | PIECE DE RECHANGE |          | 6/1  |
| 6.1    | VUE ÉCLATÉE       |          | 6/3  |

## HINWEIS:

Die nachfolgenden Positionslisten enthalten teilweise Bestellnummern, die nur fertigungstechnisch Anwendung finden. Für Servicezwecke können die Referenznummern abweichen.

Bei elektrischen Komponenten wie Widerständen, Kondensatoren, Transistoren, IC's usw., die keine spezielle, gerätegebundene Nummer haben, empfehlen wir eine lokale Beschaffung.

## NOTE:

Some of the order numbers contained in the following lists are used for production purposes only. The reference numbers may deviate for service purposes. Electrical components such as resistors, capacitors, transistors, IC's etc. having no special unit-specific number and not being identified respectively should be purchased locally.

## REMARQUE:

Les listes ci-après contiennent en partie des numéros de référence utilisés uniquement lors de la fabrication. Pour le service ces numéros peuvent différer.

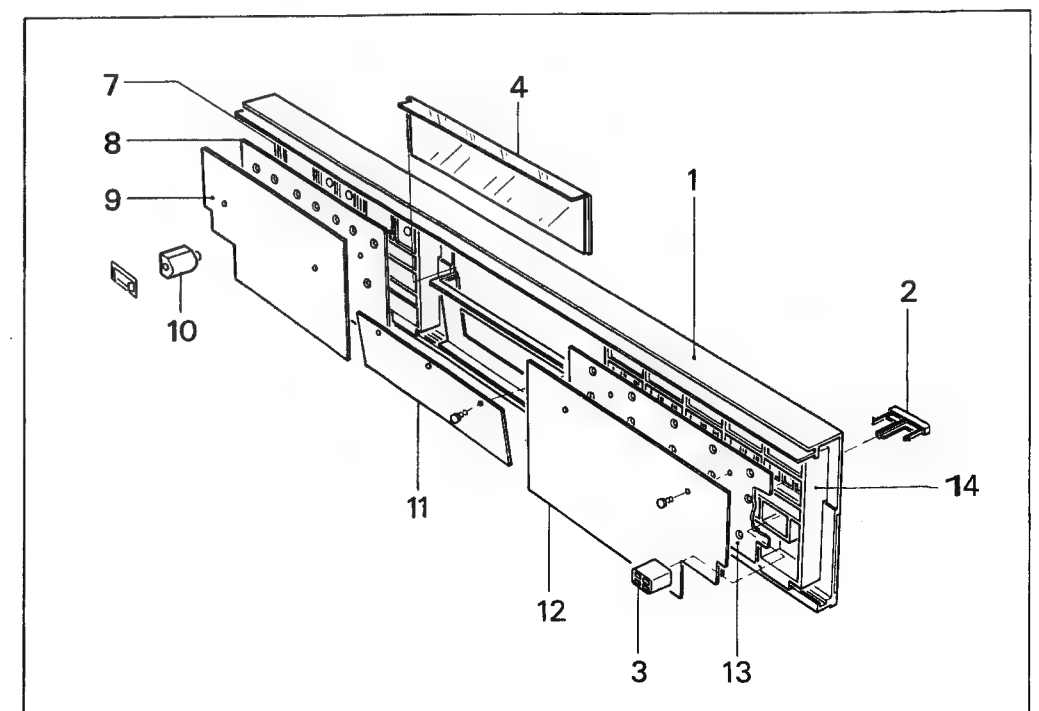
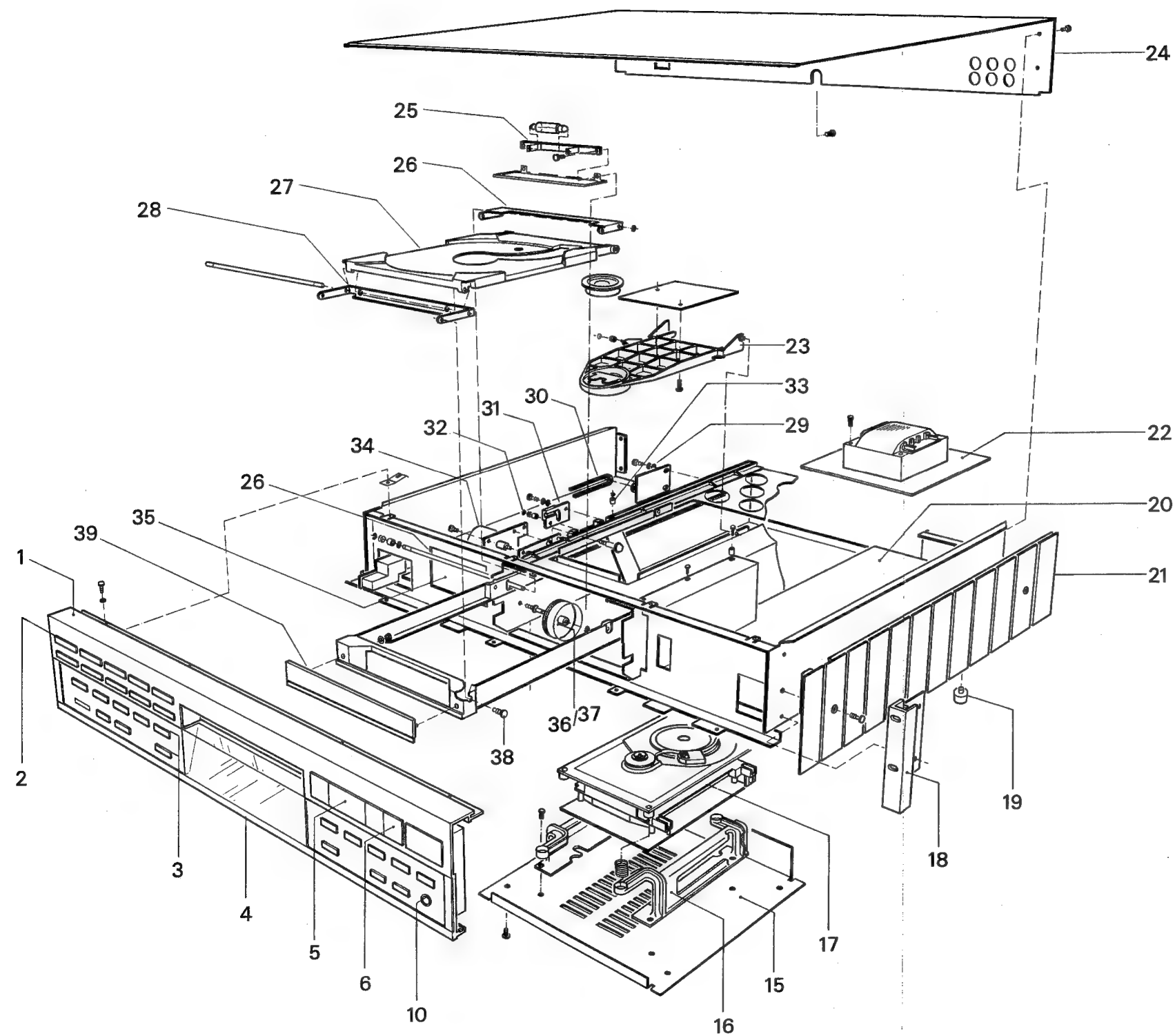
Pour tous les composants électriques, tels que résistances, transistors, IC, etc. qui n'ont pas un numéro de référence se rapportant à un type défini d'appareil, nous vous recommandons de vous les procurer localement.

B126 B226-S

|    | QTY | QTY | ORDER NUMBER | PART NAME                        | SPECIFICATION |
|----|-----|-----|--------------|----------------------------------|---------------|
| 01 | 1   | 1   | 1.769.107.00 | Front cover                      |               |
|    | 8   | 8   | 1.769.109.00 | Philips head screw               | M3x5          |
|    | 2   | 2   | 21.26.0353   | Flat spring                      |               |
|    | 2   | 2   | 1.726.510.07 | Star washer                      |               |
|    |     |     | 24.16.2030   |                                  |               |
| 02 | 10  | 10  | 1.769.100.10 | Push button                      | 5x21          |
|    |     |     | 1.726.103.01 |                                  |               |
| 03 | 10  | 16  | 1.728.100.45 | Push button                      |               |
|    |     |     | 1.728.100.46 |                                  |               |
| 04 | 1   | 1   | 1.769.140.32 | Window                           |               |
|    |     |     | 1.769.150.32 |                                  |               |
| 05 | 3   | 3   | 1.769.100.09 | Push button                      | 21x17.5       |
|    |     |     | 1.726.103.02 |                                  |               |
| 06 | 2   | 2   | 1.726.600.54 | Push button                      | 21x36         |
|    |     |     | 1.726.103.03 |                                  |               |
| 07 | 1   | 1   | 1.769.150.02 | Operating chassis                | right         |
| 08 | 1   | 1   | 1.769.100.04 | Conductive rubber mat            | right         |
| 09 | 1   | 1   | 1.769.202.00 | Keyboard PCB                     | right         |
|    | 2   | 2   | 20.99.0103   | Self tapping screw               | Ø2.2x5        |
| 10 | -   | 1   | 54.24.0101   | Jack socket                      |               |
|    | -   | 1   | 1.769.100.52 | Clip spring/Jack socket          |               |
| 11 | 1   | 1   | 1.769.253.00 | LCD PCB                          |               |
|    |     |     | 1.769.455.00 |                                  |               |
|    | 3   | 3   | 20.99.0103   | Self tapping screw               | Ø2.2x5        |
| 12 | 1   | 1   | 1.769.215.00 | Keyboard PCB                     | left          |
|    | 2   | 2   | 20.99.0103   | Self tapping screw               | Ø2.2x5        |
| 13 | 1   | 1   | 1.769.100.05 | Conductive rubber mat            | left          |
| 14 | 1   | 1   | 1.769.150.03 | Operating chassis                | left          |
| 15 | 1   | 1   | 1.769.150.24 | CD drive bottom cover            |               |
|    | 4   | 4   | 21.26.0354   | Philips head screw               | M3x6          |
| 16 | 1   | 1   | 1.769.150.22 | Damping chassis                  | right part    |
|    | 1   | 1   | 1.769.150.23 |                                  | left part     |
|    | 4   | 4   | 21.26.0355   | Philips head screw               | M3x8          |
|    | 4   | 4   | 1.769.117.02 | Damping rubber                   |               |
|    | 4   | 4   | 1.769.117.03 | Pressure spring                  |               |
| 17 | 1   | 1   | 1.769.117.00 | CD Drive CDM/4 (incl. Servo PCB) |               |
|    | 4   | 4   | 1.769.118.00 | CD Drive CDM/1/4 (incl. " " )    |               |
|    |     |     |              | Torx screw black                 |               |
| 18 | 1   | 1   | 34102        | Retrofit-kit for rack mounting   |               |
| 19 | 4   | 4   | 31.02.0209   | Foot                             | golden        |
|    |     |     | 1.726.022.00 | Foot                             |               |
| 20 | 1   | 1   | 1.769.421.00 | Decoder PCB                      |               |
|    | 8   | 8   | 1.769.422.00 | Philips head screw               | M3x5          |
|    |     |     | 21.26.0353   |                                  |               |
| 21 | 1   | 2   | 1.726.010.04 | Side cover                       | Left/right    |
|    |     |     | 1.726.010.06 |                                  |               |
|    | 4   | 4   | 1.010.046.21 | Oval head screw black            | M4x12         |
|    |     |     | 1.010.055.21 | Oval head screw black            | M4x22         |

|    |   |   |              |                                                                      |              |
|----|---|---|--------------|----------------------------------------------------------------------|--------------|
| 22 | 1 | 1 | 1.769.450.01 | Mains transformer                                                    |              |
|    | 4 | 4 | 21.26.0367   | Philips head screw                                                   | M3x45        |
|    | 4 | 4 | 23.01.3032   | Flat washer                                                          |              |
|    | 4 | 4 | 24.16.1030   | Lock washer                                                          |              |
| 23 | 1 | 1 | 1.769.140.40 | Magnet lifter                                                        |              |
|    | 1 | 1 | 1.769.140.38 | Arm reinforcement                                                    |              |
|    | 2 | 2 | 21.26.0371   | Philips head screw                                                   | M3x14        |
|    | 1 | 1 | 1.769.140.63 | Guide roller arm                                                     |              |
|    | 1 | 1 | 31.99.0138   | Rubber ring                                                          | Ø26x1.5      |
| 24 | 1 |   | 1.769.019.02 | Cover                                                                |              |
|    |   | 1 | 1.769.020.02 | Cover plate                                                          |              |
|    | 5 |   | 1.010.026.21 | Philips head screw black                                             | M3x5         |
| 25 | 1 | - | 1.769.565.00 | Illumination PCB                                                     |              |
|    | 1 | - | 1.769.565.02 | Light bulb tubular                                                   | 12V/0.25A    |
|    | 2 | - | 21.26.0353   | Philips head screw                                                   | M3x5         |
| 26 | 1 | 1 | 1.769.140.21 | Level                                                                | rear         |
|    | 1 | 1 | 1.769.140.23 | Shaft                                                                | rear         |
|    | 1 | 1 | 1.769.140.64 | Guide roller drawer                                                  |              |
|    | 1 | 1 | 1.769.140.71 | Guide roller drawer                                                  | right        |
|    | 2 | 2 | 31.99.0136   | Rubber ring                                                          |              |
|    | 3 | 3 | 24.16.3019   | Shaft lock                                                           |              |
| 27 | 1 | 1 | 1.769.150.69 | Disc lifter                                                          |              |
| 28 | 1 | 1 | 1.769.140.20 | Level                                                                | front        |
|    | 1 | 1 | 1.769.140.22 | Shaft                                                                | front        |
|    | 2 | 2 | 24.16.3019   | Shaft lock                                                           |              |
| 29 | 1 | 1 | 1.769.140.77 | Belt strecher                                                        |              |
|    | 2 | 2 | 21.26.0353   | Philips head screw                                                   | M3x5         |
|    | 2 | 2 | 23.01.1030   | Lock washer                                                          |              |
|    | 2 | 2 | 24.16.1032   | Flat washer                                                          |              |
| 30 | 1 | 1 | 1.769.140.54 | Drive toothed belt                                                   |              |
| 31 | 1 | 1 | 1.769.140.28 | Curved slide part                                                    |              |
|    | 2 | 2 | 21.26.0354   | Philips head screw                                                   | M3x6         |
|    | 2 | 2 | 23.01.1030   | Lock washer                                                          |              |
|    | 2 | 2 | 24.16.1032   | Flat washer                                                          |              |
| 32 | 1 | 1 | 1.769.140.64 | Guide roller left                                                    |              |
|    | 2 | 2 | 31.99.0136   | Rubber ring                                                          |              |
|    | 1 | 1 | 24.16.3019   | Shaft lock                                                           | Ø1.9         |
| 33 | 1 | 1 | 1.769.140.24 | Guide roller                                                         | top          |
|    | 1 | 1 | 24.16.3019   | Shaft lock                                                           | Ø1.9         |
| 34 | 1 | 1 | 1.769.143.00 | Motor drawer                                                         |              |
|    | 3 | 3 | 31.04.0120   | Vibration element                                                    |              |
|    | 3 | 3 | 21.26.0452   | Philips head screw                                                   | M4x4         |
|    | 1 | 1 | 1.769.140.79 | Vibration limiter screw<br>(Attention: apply with a drop of Loctait) |              |
| 35 | 1 |   | 1.769.402.20 | Microprocessor PCB                                                   |              |
|    | 1 |   | 1.769.406.20 | Microprocessor PCB<br>(Connector Servo PCB)                          |              |
|    |   | 1 | 1.769.407.20 | dito                                                                 |              |
|    | 4 | 4 | 21.26.0353   | Philips head screw                                                   | M3x5         |
| 36 | 1 | 1 | 1.769.140.70 | Roller drawer                                                        | Left         |
|    | 1 | 1 | 31.99.0137   | Rubber ring                                                          |              |
|    | 1 | 1 | 1.769.140.46 | Bearing shaft                                                        |              |
|    | 1 | 1 | 24.16.3023   | Retaining clip                                                       |              |
|    | 1 | 1 | 22.01.5040   | Hex nut                                                              | M4x0.5 spec. |

|    |   |   |              |                     |              |
|----|---|---|--------------|---------------------|--------------|
| 37 | 1 | 1 | 1.769.140.71 | Roller drawer       | right        |
|    | 1 | 1 | 31.99.0137   | Rubber ring         |              |
|    | 1 | 1 | 1.769.140.46 | Bearing shaft       |              |
|    | 1 | 1 | 24.16.3023   | Retaining clip      |              |
|    | 1 | 1 | 22.01.5040   | Hex nut             | M4x0.5 spec. |
| 38 | 4 | 4 | 1.769.140.88 | Special screw       |              |
| 39 | 1 |   | 1.769.150.20 | Front profile       |              |
|    |   | 1 | 1.769.180.09 | Front profile black |              |
|    | 2 | 2 | 22.01.8030   | Hex nut             | M3           |
|    | 2 | 2 | 23.01.3032   | Flat washer         |              |





## 7. Technical data REVOX B126 CD Player

## Audio data

|                               |                                                   |
|-------------------------------|---------------------------------------------------|
| <b>Number of channels:</b>    | 2                                                 |
| <b>Frequency response:</b>    | 20 Hz ... 20 kHz, $\pm 0.1$ dB                    |
| <b>Harmonic distortion:</b>   | < 0.005% (20 Hz ... 20 kHz)                       |
| <b>Signal-to-noise ratio:</b> |                                                   |
| linear:                       | 100 dB (20 Hz ... 20 kHz)                         |
| A-weighted:                   | 106 dB                                            |
| <b>Channel separation:</b>    | > 90 dB (20 Hz ... 20 kHz)                        |
| <b>Output level:</b>          |                                                   |
| ANALOG OUTPUT:                | 2.5 V, $R_i < 500 \Omega$ , short-circuit-proof   |
| DIGITAL OUTPUT:               | 500 mVpp, $R_i = 75 \Omega$ , short-circuit-proof |
| <b>Channel balance:</b>       | < 0.2 dB                                          |
| <b>Phase linearity:</b>       | by digital filtering (oversampling)               |

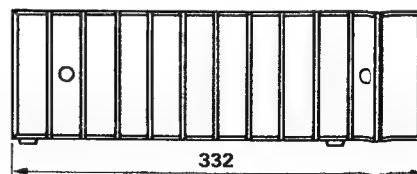
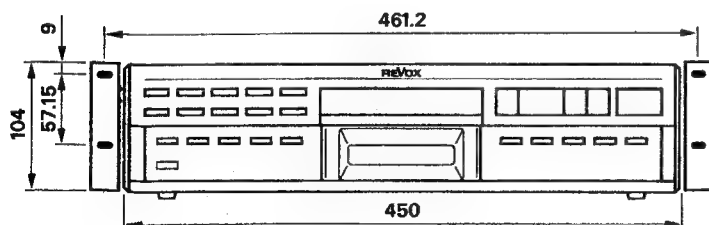
## General:

|                                |                                                                                                 |
|--------------------------------|-------------------------------------------------------------------------------------------------|
| <b>Remote control:</b>         | With hand-held IR transmitter B208 or via SERIAL LINK socket of the REVOX remote control system |
| <b>Power requirements:</b>     | 220 VAC $\pm 5/-10\%$ , 50 ... 60 Hz<br>Solder strappable to 110 V or 240 V                     |
| <b>Power fuse:</b>             | 220 V, 240 V      200 mA slow<br>110 V                400 mA slow                               |
| <b>Power consumption:</b>      | max. 25 W<br>Standby: < 6 W                                                                     |
| <b>Dimensions (W x H x D):</b> | 450 x 109 x 332 mm                                                                              |
| <b>Weight:</b>                 | 8.5 kg                                                                                          |

Subject to change.

## General CD Specifications

|                                      |                                                                                                      |
|--------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>Scanning frequency:</b>           | 44.1 kHz                                                                                             |
| <b>Quantisation:</b>                 | 16 bit linear/channel                                                                                |
| <b>Recording rate:</b>               | 4.3218 Mbit/sec                                                                                      |
| <b>Digital/analog conversion:</b>    | 16 bit, quad oversampling                                                                            |
| <b>Optical pickup:</b>               | AlGaAs semiconductor laser                                                                           |
| <b>Wave length:</b>                  | 780 nm                                                                                               |
| <b>Error correction system:</b>      | CIRC (Cross Interleave Reed Solomon Code)                                                            |
| <b>Preemphasis:</b>                  | 50 or 15 $\mu$ s (automatic changeover)                                                              |
| <b>CD rotational speed:</b>          | 500 ... 200 RPMs                                                                                     |
| <b>Scanning speed:</b>               | 1.2 ... 1.4 m/s                                                                                      |
| <b>Constant speed:</b>               | quartz-accurate                                                                                      |
| <b>Max. Playing time:</b>            | 74 min                                                                                               |
| <b>Start-up time from pause:</b>     | < 0.6 s                                                                                              |
| <b>Search time for any position:</b> | < 3 s                                                                                                |
| <b>Display:</b>                      | Multifunctional LC display for indication of TRACK, INDEX, DISC/TRACK TIME DISC/TRACK REMAINING TIME |
| <b>Programming:</b>                  | 19 tracks in any order plus the special functions LOOP, PAUSE or POWER OFF                           |





## 7. Technische Daten REVOX B126 CD Player

## Audio-Daten

|                                  |                                           |
|----------------------------------|-------------------------------------------|
| <b>Anzahl Kanäle:</b>            | 2                                         |
| <b>Frequenzgang:</b>             | 20 Hz ... 20 kHz, $\pm 0,1$ dB            |
| <b>Klirrfaktor:</b>              | < 0,005 % (20 Hz ... 20 kHz)              |
| <b>Geräuschspannungsabstand:</b> |                                           |
| linear:                          | 100 dB (20 Hz ... 20 kHz)                 |
| A-bewertet:                      | 106 dB                                    |
| <b>Übersprechdämpfung:</b>       | > 90 dB (20 Hz ... 20 kHz)                |
| <b>Ausgangspegel:</b>            |                                           |
| ANALOG OUTPUT:                   | 2,5 V, $R_i < 500$ Ohm, kurzschlussfest   |
| DIGITAL OUTPUT:                  | 500 mVpp, $R_i = 75$ Ohm, kurzschlussfest |
| <b>Kanalgleichheit:</b>          | < 0,2 dB                                  |
| <b>Phasenlinearität:</b>         | durch digitale Filterung (Oversampling)   |

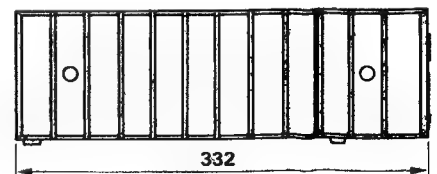
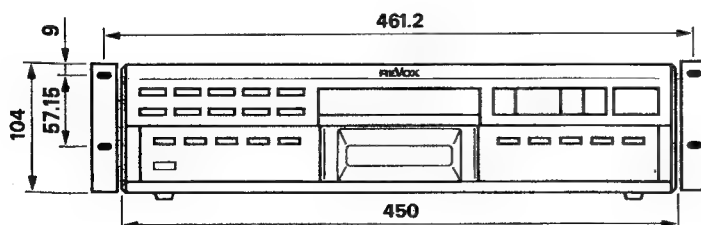
## Allgemeine CD-Daten

|                                       |                                                                                                       |
|---------------------------------------|-------------------------------------------------------------------------------------------------------|
| <b>Abtastfrequenz:</b>                | 44,1 kHz                                                                                              |
| <b>Quantisierung:</b>                 | 16 Bit linear/Kanal                                                                                   |
| <b>Aufzeichnungsrate:</b>             | 4,3218 MBit/s                                                                                         |
| <b>Digital-Analog-Wandlung:</b>       | 16 Bit, Vierfach-Oversampling                                                                         |
| <b>Optischer Abtaster:</b>            | AlGaAs-Halbleiterlaser                                                                                |
| <b>Wellenlänge:</b>                   | 780 nm                                                                                                |
| <b>Fehlerkorrektur-System:</b>        | CIRC (Cross Interleave Reed Solomon Code)                                                             |
| <b>Preemphasis:</b>                   | 50 oder 15 $\mu$ s (automatisch umgeschaltet)                                                         |
| <b>CD-Drehgeschwindigkeit:</b>        | 500 ... 200 U/min.                                                                                    |
| <b>Abtastgeschwindigkeit:</b>         | 1,2 ... 1,4 m/s                                                                                       |
| <b>Gleichlauf:</b>                    | quarzgenau                                                                                            |
| <b>Max. Spieldauer:</b>               | 74 Min.                                                                                               |
| <b>Startzeit aus Pause:</b>           | < 0,6 s                                                                                               |
| <b>Suchzeit für beliebige Stelle:</b> | < 3 s                                                                                                 |
| <b>Anzeige:</b>                       | Multifunktionales LC-Display mit Anzeige von TRACK, INDEX, DISC/TRACK TIME, DISC/TRACK REMAINING TIME |
| <b>Programmierung:</b>                | 19 Tracks in beliebiger Reihenfolge sowie Sonderfunktionen LOOP, PAUSE oder POWER OFF                 |

## Allgemeines

|                                 |                                                                               |
|---------------------------------|-------------------------------------------------------------------------------|
| <b>Fernbedienung:</b>           | Mit IR-Handsender B208 oder über Buchse SERIAL LINK am REVOX-Fernsteuersystem |
| <b>Stromversorgung:</b>         | 220 VAC + 5/-10 %, 50 ... 60 Hz, umlötbare auf 110 V oder 240 V               |
| <b>Leistungsaufnahme:</b>       | max. 25 W<br>Standby: < 6 W                                                   |
| <b>Netzsicherung:</b>           | 220/240 VAC T 200 mA<br>110 VAC T 400 mA                                      |
| <b>Abmessungen (B x H x T):</b> | 450 x 109 x 332 mm                                                            |
| <b>Gewicht:</b>                 | 8,5 kg                                                                        |

Änderungen vorbehalten



## 7. Caractéristiques techniques REVOX B126 CD Player

## Données audio

|                                      |                                                                                                                                        |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Nombre de canaux:</b>             | 2                                                                                                                                      |
| <b>Bande passante:</b>               | 20 Hz ... 20 kHz, $\pm 0,1$ dB                                                                                                         |
| <b>Distorsions:</b>                  | $< 0,005\%$ (20 Hz ... 20 kHz)                                                                                                         |
| <b>Ecart signal bruit:</b>           |                                                                                                                                        |
| linéaire:                            | 100 dB (20 Hz ... 20 kHz)                                                                                                              |
| pondéré A:                           | 106 dB                                                                                                                                 |
| <b>Affaiblissement de diaphonie:</b> | $> 90$ dB (20 Hz ... 20 kHz)                                                                                                           |
| <b>Niveau de sortie:</b>             |                                                                                                                                        |
| ANALOG OUTPUT:                       | 2,5 V, $R_i < 500 \Omega$ ,<br>protégée contre les court-circuits<br>500 mVcc, $R_i 75 \Omega$ ,<br>protégée contre les court-circuits |
| DIGITAL OUTPUT:                      |                                                                                                                                        |
| <b>Egalité des canaux:</b>           | $< 0,2$ dB                                                                                                                             |
| <b>Linéarité de phase:</b>           | par filtrage digital (suréchantillonnage)                                                                                              |

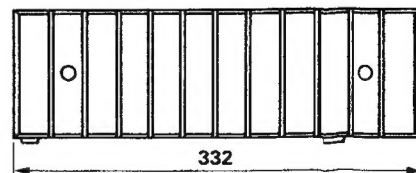
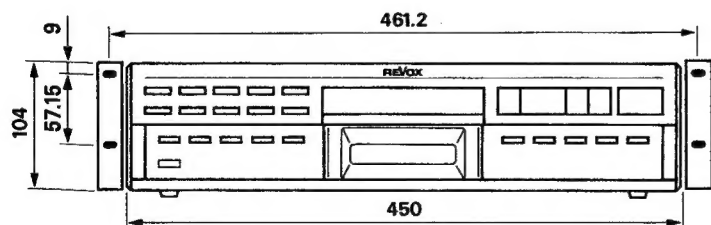
## Généralités

|                                                  |                                                                                       |
|--------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Fréquence d'échantillonnage:</b>              | 44,1 kHz                                                                              |
| <b>Quantification:</b>                           | 16 bits linéaire/canal                                                                |
| <b>Vitesse de transmission:</b>                  | 4,3218 Mbit/s                                                                         |
| <b>Conversion D/A:</b>                           | 16 bits, quadruple suréchantillonnage                                                 |
| <b>Lecteur optique:</b>                          | laser à semi-conducteur AlGaAs                                                        |
| <b>Longueur d'onde:</b>                          | 0,78 $\mu$ m                                                                          |
| <b>Système de correction d'erreurs:</b>          | CIRC (Cross Interleave Reed Solomon Code)                                             |
| <b>Préaccentuation:</b>                          | 50 ou 15 $\mu$ s (commutation automatique)                                            |
| <b>Vitesse de rotation CD:</b>                   | 500 ... 200 t/min.                                                                    |
| <b>Vitesse de lecture:</b>                       | 1,2 ... 1,4 m/s                                                                       |
| <b>Synchronisation:</b>                          | quartz                                                                                |
| <b>Durée max. de lecture:</b>                    | 74 min.                                                                               |
| <b>Départ de pause:</b>                          | $< 0,6$ s                                                                             |
| <b>Temps de recherche pour point quelconque:</b> | $< 3$ s                                                                               |
| <b>Affichage:</b>                                | LC multifonctionnel pour TRACK, INDEX, DISC/<br>TRACK TIME, DISC/TRACK REMAINING TIME |
| <b>Programmation:</b>                            | 19 titres en ordre quelconque et fonction spéciales LOOP, PAUSE ou POWER OFF          |

## Généralités:

|                                |                                                                                     |
|--------------------------------|-------------------------------------------------------------------------------------|
| <b>Télécommande:</b>           | Avec émetteur IRE B208 ou par la prise SERIAL LINK du système de télécommande REVOX |
| <b>Alimentation:</b>           | 220 VAC $\pm 5/-10\%$ , 50 ... 60 Hz modifiable pour 110 ou 240 V                   |
| <b>Fusible secteur:</b>        | 220 V, 240 V T 200 mA (retardé)<br>110 V T 400 mA (retardé)                         |
| <b>Consommation:</b>           | max. 25 W<br>veille: $< 6$ W                                                        |
| <b>Dimensions (L x H x P):</b> | 450 x 109 x 332 mm                                                                  |
| <b>Poids:</b>                  | 8,5 kg                                                                              |

Modifications réservées.



## 7. Technische Daten REVOX B226-S CD Player

## Audio-Daten

|                           |                                                   |
|---------------------------|---------------------------------------------------|
| Anzahl Kanäle:            | 2                                                 |
| Frequenzgang:             | 20 Hz ... 20 kHz, $\pm 0,1$ dB                    |
| Klirrfaktor:              | < 0,004% (20 Hz ... 20 kHz)                       |
| Geräuschspannungsabstand: |                                                   |
| linear:                   | 102 dB (20 Hz ... 20 kHz)                         |
| A-bewertet:               | 108 dB                                            |
| Übersprechdämpfung:       | > 90 dB (20 Hz ... 20 kHz)                        |
| Ausgangspegel:            |                                                   |
| FIXED OUTPUT:             | 2,5 V, $R_i < 500 \Omega$ , kurzschlussfest       |
| VARIABLE OUTPUT:          | 0 ... 2,5 V, $R_i < 500 \Omega$ , kurzschlussfest |
| DIGITAL OUTPUT:           | 500 mVpp, $R_i = 75 \Omega$ , kurzschlussfest     |
| Kopfhörerausgang:         | 4,5 V, $R_i < 50 \Omega$ , kurzschlussfest        |
| Kanalgleichheit:          | < 0,2 dB                                          |
| Phasenlinearität:         | durch digitale Filterung (Oversampling)           |

## Allgemeine CD-Daten

|                                |                                               |
|--------------------------------|-----------------------------------------------|
| Abtastfrequenz:                | 44,1 kHz                                      |
| Quantisierung:                 | 16 Bits linear/Kanal                          |
| Aufzeichnungsrate:             | 4,3218 MBit/s                                 |
| Digital-Analog-Wandlung:       | 16 Bit, Vierfach-Oversampling                 |
| Optischer Abtaster:            | AlGaAs-Halbleiterlaser                        |
| Wellenlänge:                   | 780 nm                                        |
| Fehlerkorrektur-System:        | CIRC (Cross Interleave Reed Solomon Code)     |
| Preemphasis:                   | 50 oder 15 $\mu$ s (automatisch umgeschaltet) |
| CD-Drehgeschwindigkeit:        | 500 ... 200 U/min.                            |
| Abtastgeschwindigkeit:         | 1,2 ... 1,4 m/s                               |
| Gleichlauf:                    | quarzgenau                                    |
| max. Spieldauer:               | 74 min.                                       |
| Startzeit aus Pause:           | < 0,6 s                                       |
| Suchzeit für beliebige Stelle: | < 3 s                                         |

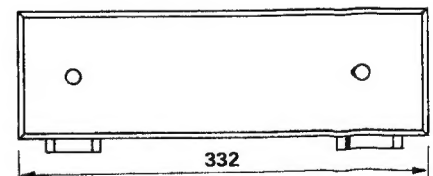
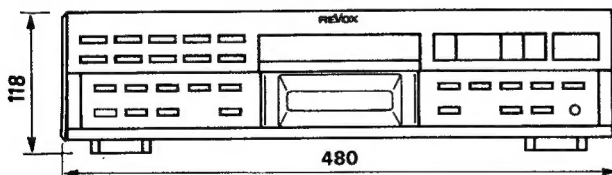
## Anzeige:

Multifunktionales LC-Display, informiert über folgende Zustände:

TRACK: aktueller Stand entweder in TRACK-Anzeige oder im 30-Segment-Balken  
 INDEX: Indizes werden automatisch angezeigt  
 TIME: jede mögliche Zeit kann angezeigt werden:  
 DISC TIME  
 TRACK TIME  
 TRACK REMAINING TIME  
 DISC REMAINING TIME

|                           |                                                                                                                                                                                                         |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PAUSE, AUTOSTOP, LOOP:    | spezielle Betriebsarten werden angezeigt                                                                                                                                                                |
| PROGRAM MODE:             | jeder Programmschritt wird sekundengenau angezeigt                                                                                                                                                      |
| VOLUME:                   | Position des Lautstärkestellers in der 30-Segment-Balkenanzeige während des Verstellens. Auflösung ca. 2 dB/Segment                                                                                     |
| Programmiermöglichkeiten: | 19 Programmschritte; TRACK, TIME oder vermischt. Eingabe über Zehnertastatur oder durch Setzen von Marken, sekundengenau. Sonderfunktionen wie LOOP, PAUSE oder POWER OFF usw. ebenfalls programmierbar |
| Fernbedienung:            | Mit IR-Handsender B208 oder über Buchse SERIAL LINK am REVOX-Fernsteuersystem                                                                                                                           |
| Stromversorgung:          | 220 VAC $\pm 5\%$ 50 ... 60 Hz<br>umlötbar auf 110 V oder 240 V                                                                                                                                         |
| Netzsicherung:            | 220 V, 240 V T 200 mA<br>110 V T 400 mA                                                                                                                                                                 |
| Leistungsaufnahme:        | max. 25 W<br>Standby: < 6 W                                                                                                                                                                             |
| Abmessungen (B x H x T):  | 480 x 118 x 332 mm                                                                                                                                                                                      |
| Gewicht (Masse):          | 9,5 kg                                                                                                                                                                                                  |

Änderungen vorbehalten



## 7. Technical data REVOX B226-S CD Player

## Audio data

|                               |                                                       |
|-------------------------------|-------------------------------------------------------|
| <b>Number of channels:</b>    | 2                                                     |
| <b>Frequency response:</b>    | 20 Hz ... 20 kHz, $\pm 0.1$ dB                        |
| <b>Harmonic distortion:</b>   | < 0.004% (20 Hz ... 20 kHz)                           |
| <b>Signal-to-noise ratio:</b> |                                                       |
| linear:                       | 102 dB (20 Hz ... 20 kHz)                             |
| A-weighted:                   | 108 dB                                                |
| <b>Channel separation:</b>    | > 90 dB (20 Hz ... 20 kHz)                            |
| <b>Output level:</b>          |                                                       |
| FIXED OUTPUT:                 | 2.5 V, $R_i < 500 \Omega$ , short-circuit-proof       |
| VARIABLE OUTPUT:              | 0 ... 2.5 V, $R_i < 500 \Omega$ , short-circuit-proof |
| DIGITAL OUTPUT:               | 500 mVpp, $R_i = 75 \Omega$ , short-circuit-proof     |
| HEADPHONES OUTPUT:            | 500 mVpp, $R_i = < 50 \Omega$ , short-circuit-proof   |
| <b>Channel balance:</b>       | < 0.2 dB                                              |
| <b>Phase linearity:</b>       | by digital filtering (oversampling)                   |

## General CD Specifications

|                                         |                                           |
|-----------------------------------------|-------------------------------------------|
| <b>Scanning frequency:</b>              | 44.1 kHz                                  |
| <b>Quantisation:</b>                    | 16 bit linear/channel                     |
| <b>Recording rate:</b>                  | 4.3218 Mbit/sec                           |
| <b>Digital/analog conversion:</b>       | 16 bit, quad oversampling                 |
| <b>Optical pickup:</b>                  | AlGaAs semiconductor laser                |
| <b>Wave length:</b>                     | 780 nm                                    |
| <b>Error correction system:</b>         | CIRC (Cross Interleave Reed Solomon Code) |
| <b>Preemphasis:</b>                     | 50 or 15 $\mu$ s (automatic changeover)   |
| <b>CD rotational speed:</b>             | 500 ... 200 RPMs                          |
| <b>Scanning speed:</b>                  | 1.2 ... 1.4 m/s                           |
| <b>Constant speed:</b>                  | quartz-accurate                           |
| <b>Max. Playing time:</b>               | 74 min                                    |
| <b>Start-up time from pause:</b>        | < 0.6 s                                   |
| <b>Search time for any CD location:</b> | < 3 s                                     |

## Display:

Multifunctional LC display. Provides information on the following states:

TRACK: Current address either on TRACK display or 30-segment bar.  
 INDEX: Indices are automatically indicated  
 TRACK TIME  
 DISC TIME  
 TRACK REMAINING TIME  
 DISC REMAINING TIME

**PAUSE, AUTOSTOP, LOOP:** Special operating modes are indicated

**PROGRAM MODE:** Each program step is indicated with one second accuracy

**VOLUME:** The position of the volume control is indicated on the 30-segment bar while the control is being manipulated.  
 Resolution approx. 2db per segment.

**Programming:** 19 program steps; TRACK TIME or intermixed. Input via 10-key pad or by setting markers with one second accuracy. Special functions like LOOP, PAUSE, or POWER OFF, etc. can also be programmed.

**Remote control:** With hand-held IR transmitter B208 or via SERIAL LINK socket of the REVOX remote control system.

**Power requirements:** 220 VAC  $\pm 5\%$  10%, 50 ... 60 Hz  
 Solder strappable to 110 V or 240 V

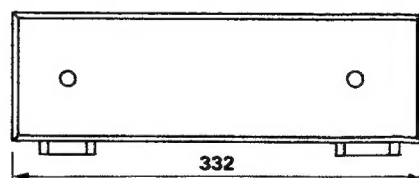
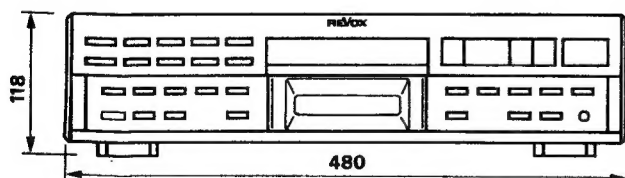
**Power fuse:** 220 V, 240 V 200 mA slow  
 110 V 400 mA slow

**Power consumption:** max. 25 W  
 Standby: < 6 W

**Dimensions (W x H x D):** 480 x 118 x 332 mm

**Weight:** 9.5 kg

Subject to change.



## 7. Caractéristiques techniques REVOX B226-S CD Player

## Données audio

|                               |                                                                      |
|-------------------------------|----------------------------------------------------------------------|
| Nombre de canaux:             | 2                                                                    |
| Bande passante:               | 20 Hz ... 20 kHz, $\pm 0,1$ dB                                       |
| Distorsions:                  | $< 0,004\%$ (20 Hz ... 20 kHz)                                       |
| Ecart signal bruit:           |                                                                      |
| linéaire:                     | 102 dB (20 Hz ... 20 kHz)                                            |
| évaluatif:                    | 108 dB                                                               |
| Affaiblissement de diaphonie: | $> 90$ dB (20 Hz ... 20 kHz)                                         |
| Niveau de sortie:             |                                                                      |
| FIXED OUTPUT:                 | 2,5 V, $R_i < 500 \Omega$ , protégée contre les court-circuits       |
| VARIABLE OUTPUT:              | 0 ... 2,5 V, $R_i < 500 \Omega$ , protégée contre les court-circuits |
| DIGITAL OUTPUT:               | 500 mVcc, $R_i = 75 \Omega$ , protégée contre les court-circuits     |
| SORTIE CASQUE:                | 4,5 V, $R_i < 50 \Omega$ , protégée contre les court-circuits        |
| Egalité des canaux:           | $< 0,2$ dB                                                           |
| Linéarité de phase:           | par filtrage digital (suréchantillonnage)                            |

## Généralités

|                                           |                                           |
|-------------------------------------------|-------------------------------------------|
| Fréquence d'échantillonnage:              | 44,1 kHz                                  |
| Quantification:                           | 16 bits linéaire/canal                    |
| Vitesse de transmission:                  | 4,3218 Mbit/s                             |
| Conversion D/A:                           | 16 bits, quadruple suréchantillonnage     |
| Lecteur optique:                          | laser à semi-conducteurs AlGaAs           |
| Longueur d'onde:                          | 0,78 $\mu$ m                              |
| Système de correction d'erreurs:          | CIRC (Cross Interleave Reed Solomon Code) |
| Préaccentuations:                         | 50 ou 15 $\mu$ s (commutatif automatique) |
| Vitesse de rotation CD:                   | 500 ... 200 t/min.                        |
| Vitesse de lecture:                       | 1,2 ... 1,4 m/s                           |
| Synchronisation:                          | quartz                                    |
| Durée max. de lecture:                    | 74 min.                                   |
| Départ de pause:                          | $< 0,6$ s                                 |
| Temps de recherche pour point quelconque: | $< 3$ s                                   |

## Affichage:

LC multifonctionnel renseignant sur les états suivants:

TRACK: état actuel soit en TRACK, soit en 30 segments.  
 INDEX: les repères sont indiqués automatiquement  
 TIME: possibilité d'afficher tout temps voulu:  
 DISC TIME  
 TRACK TIME  
 TRACK REMAINING TIME  
 DISC REMAINING TIME

**PAUSE, AUTOSTOP, LOOP:** affichage des modes spéciaux

**PROGRAM MODE:** chaque pas de programme est affiché à la seconde près

**VOLUME:** affichage à 30 segments de la position du réglage de volume pendant le réglage. Résolution environ 2 dB par segment.

**Possibilités de programmation:** 19 pas de programme: TRACK, TIME ou mixte. Introduction par clavier numérique ou par placement de marques, à la seconde près. Fonctions spéciales comme LOOP, PAUSE ou POWER OFF également programmables.

**Télécommande:** avec émetteur IR B208 ou par la prise SERIAL LINK du système de télécommande REVOX

**Alimentation:** 220 VAC  $\pm 5/-10\%$ , 50 ... 60 Hz modifiable pour 110 ou 240 V

**Fusible secteur:** 220 V, 240 V T 200 mA (retardé)  
 110 V T 400 mA (retardé)

**Consommation:** max. 25 W  
 veille:  $< 6$  W

**Dimensions (L x H x P):** 480 x 118 x 332 mm

**Poids:** 9,5 kg

Modifications réservées

